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*Hugh Cecil Earl of Lonsdale.*

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THE

# HISTORY OF THE HORSE:

## ITS ORIGIN, PHYSICAL AND MORAL CHARACTERISTICS,

ITS

## PRINCIPAL VARIETIES, AND DOMESTIC ALLIES.

By W. C. L. MARTIN.

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WITH AN APPENDIX ON THE DISEASES OF THE HORSE, BY W. YOUATT.

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THE

# HISTORY OF THE HORSE.

## CHAPTER I.

### ON THE FOSSIL REMAINS OF THE HORSE.

CONTEMPORARY with several species of mammoth, mastodon and rhinoceros, and with various huge edentate animals—the megatherium, the mylodon, and glyptodon —was the horse, or rather a species of the genus *Equus;* and apparently more than one existed, as the fossil remains deposited in the same strata with the relics of those huge extinct beasts abundantly testify. These fossil remains of the horse occur alike in Europe, in Asia, in Africa,* and in North and South America, and that too in considerable abundance. They are imbedded in fresh-water deposits; in superficial gravel, sands, and clays; in the osseous breccia; in the Eppelsheim sand, and in ossiferous caverns—in the formations assigned by geologists to the third or Pleiocene period of the tertiary series of strata.

Cuvier, speaking of the fossil horse, says, " Its teeth accompany in thousands the remains of the animals just mentioned (viz. mammoth, mastodon, &c.) in almost all their localities; but it is not possible to say whether it was one of the species now existing or not, because the

* Col. H. Smith has seen fossil teeth of the horse from Barbary.

skeletons of these species are so like each other that they cannot be distinguished by a mere comparison of isolated fragments."

Without attempting to enter into osteological minutiæ, we may observe that an examination of a collection of the fossil remains of the genus *Equus*, in that noble institution the British Museum, has convinced us that (as in the case of the fossil elephant or mammoth) more than one species may be determined; but whether the horse, or any other now living species of *equus*, derive its origin from one of these contemporaries of the mammoth and mastodon, is a point which cannot be very easily settled.

From the remains which we looked over, we were led to conclude that on continental Europe a species of horse of middle size, and one of the size of a zebra (*equus nanus*; *hippotherium nanum*, Kaup) existed; while in our island the relics of a large species, equalling a cart-horse in stature, and others apparently identical with those of the smaller of the ancient continental species, are found. In India the fossil bones of two, if not three, species have been brought to England by Captain Cautley: they were found, among other relics, lying on the slopes among the ruins of fallen cliffs, and partly *in situ* in the sandstone of the Sewalik hills at the southern foot of the Himalayas, between the Sutlej and the Ganges. One species appears to have closely resembled the Arab breed of the present day;—the skull is broad between the eyes, and the chaffron concave. Another species was small in size, but long limbed, and probably very fleet: the bones of the extremities are remarkable for their slenderness, and remind us of those of the antelope.

In North America, fossil remains of a horse were brought home by Captain Beechey from the mud cliffs of Eschscholtz Bay: they were found associated with the remains of the mammoth and fossil ox. To this we add Mr. Darwin's observation, "That horses' bones, mingled with those of the mastodon, have several times been transmitted for sale from North America to England but it has always been imagined, from the simple fact o

their being horses' bones, that they had been accidentally mingled with the fossils."

In South America Mr. Darwin found the fossil tooth of a horse, together with one of the extinct toxodon, at St. Fé, in the red clayey stratum of the Pampas; and also part of another tooth at Bahia Blanca, imbedded with numerous other fossil remains of extinct edentata, in a beach which was covered at spring tides.

In the caverns of Minas Geraes, a mining district of Brazil, relics of a species of horse (*equus curvidens*, Owen) have been found in considerable abundance.

If, then, we except Australia, from which portion of the globe we are not aware that any fossil bones of the horse have been brought, species of the genus *Equus* have been dispersed throughout Europe, Asia, Africa, and America, at an epoch in which the huge extinct pachydermata were also living, as their relics mingled together attest. The mammoth and the mastodon, the wild ox and the horse, roamed over vast regions, from which a series of geological changes have ultimately extirpated them; and it is somewhat curious that the modern horse should have been, by man's agency, introduced since the time of Columbus into America, where it now roams at liberty, the successor of an extinct species.

"Very few species of living quadrupeds," observes Mr. Darwin, "which are altogether terrestrial in their habits, are common to the two continents, and these few are chiefly confined to the extreme frozen regions of the north. The separation, therefore, of the Asiatic and American geological provinces appears formerly to have been less perfect than at present. The remains of the elephant and ox have been found on the banks of the Amadir (long. 175° E.), on the extreme part of Siberia, nearest the American coast; and the former remains, according to Chamisso, are common in the Peninsula of Kamtschatka. On the opposite shores, likewise, of the narrow strait which divides these two great continents, we know from the discoveries of Kotzebue and Beechey that the remains of both animals occur abundantly, and as Dr. Buckland has shown, they are

associated with the bones of the horse, the teeth of which animal in Europe, according to Cuvier, accompany by thousands the remains of the pachydermata of the later periods. With these facts, we may safely look at this quarter as the line of communication, now interrupted by the steady progress of geological change, by which the elephant, the ox, and the horse entered America, and peopled its wide extent." That such might have been the channel of introduction by which these extinct animals entered America, we will not deny; a continuity of land, unbroken by water, might undoubtedly have existed, and afforded a free passage; but another view of the subject may be taken — a view involving a brief consideration on the geographical range of typical genera,—that is, genera in which the great leading characters of the class are most fully exemplified. It is an idea started by our friend Mr. Waterhouse, and we concur in the correctness of it, that typical genera are of the most extensive distribution; for example,—among the carnivora, the Felidæ or cats are the most typical; and of the genus Felis, no quarter of the globe, with the exception of Australia, is destitute of its own recent species. The same remarks apply to the canine race,—dogs, wolves, and foxes (Gen. *Canis*). Among the true pachydermata, the genus Elephas stands conspicuous. Only two living species are known,—one Indian, one African; but species now extinct from geological causes operating in the regions where they dwelt were once spread over Europe and Asia, and were distributed also to America. The genus Mastodon, another typical group of the pachydermatous order, now known only from its fossil relics, was spread alike through Europe, Asia, and America; and that an allied gigantic form existed in Australia, is proved by various fossil bones recently transmitted from that vast region by Sir Thomas Mitchell. These fossils consist of a portion of a molar tooth, of the shaft of a thigh bone, part of the spine, a scapula, and other fragments. They were found on the Darling Downs, extensive plains at the source of the river Darling, and upwards of 4000 feet above the level

of the sea. Sir Thomas Mitchell, in his communication to Professor Owen, to whom the relics in question were forwarded, states that these huge bones are found in some abundance. According to Professor Owen, they prove the animal to have been allied to the Mastodon and dinotherium, and "tell us plainly that the time was when Australia's arid plains were trodden by the hoofs of heavy pachyderms; but could the land then, as now, have been parched by long-continued droughts, with dry river courses, containing here and there a pond of water? All the facts and analogies which throw light on the habits of the extinct mastodons and dinotheres indicate these creatures to have been frequenters of marshes, swamps, or lakes. Other relations of land and sea than now characterize the southern hemisphere, a different condition of the surface of the land, and of the meteoric influences governing the proportion and distribution of fresh water, on that surface, may therefore be conjectured to have prevailed when huge mastodontoid pachyderms constituted part of the quadruped population of Australia. May not the change from a humid climate to the present particularly dry one have been the cause or chief cause of the extinction of such pachyderms? Was not the ancient Terra Australis, when so populated, of greater extent than the present insular continent? The mutual dependencies between large mammalian quadrupeds and other members of the animal kingdom suggest other reflexions in connection with the present fossils. If ever the extinct species so abounded as to require its redundancy to be suppressed by a carnivorous enemy, then some destructive species of this kind must have co-existed, of larger dimensions than the extinct Dasyurus Laniarius, the ancient destroyer of the now equally extinct gigantic kangaroos, Macropus Titan, &c., whose remains were discovered in the bone-caves of Wellington Valley." These and other speculations are naturally suggested by the highly interesting fossils in question,—speculations bearing upon the geological and the meteorological condition; upon the botanical, mammal, and even entomological productions

of the regions of Australia, at the period when this huge pachyderm in its living person represented the contemporaneous mammoths and mastodons of other portions of the globe. If from these gigantic pachydermata we turn to the solidungulous group of that order, constituting the natural genus Equus (or if Mr. Gray's arrangement be adopted, two genera, namely, Equus and Asinus), we shall find the same law of geographical distribution still to prevail. Passing by doubtful species vaguely mentioned by travellers, and the Isabelline zebra of South Africa, described by Le Vaillant as being of a uniform cream colour, three species, viz., the zebra, Burchell's zebra, and the quagga, are African—two at least, the dziggetai, and the koulan or wild ass are Asiatic,—the latter also extending into North Africa;—and, setting aside the domestic horse,—horses of different species were once spread over the whole of Europe, Asia, and America. Consequently there is no necessity for us to adopt the theory, that the fossil-horse of America was (as confessedly its modern representative is) an introduced species; we have no reason to doubt that it was aboriginal, and peculiar to that continent, which presents us still with two distinct species of tapir, while another species is peculiar to Malacca and Sumatra. In the same manner, if we look at the bovine group, genus Bos, we find that every quarter of the globe has its respective species, setting aside the species now extinct, of which the fossil remains are spread so abundantly. It is sufficient to have hinted at this view of the case, upon which it is not necessary to assume that the ancient horse of America must have migrated thither from the old world, seeing that America might have had her own indigenous species. But our conjecture from this mode of reasoning becomes converted into something more positive, when we learn that the fossil relics found in the caverns of Minas Geraes belong to a peculiar and distinct species. These remains were brought to Europe by their discoverer, M. Claussen, and, as the teeth prove, are reliquiæ of the same species as that to which the teeth collected by Mr. Darwin be-

longs. This species, from a peculiarity in the form of the teeth, is termed by Professor Owen Equus curvidens. As far as we yet know, the fossil bones of the Equus curvidens have not been found in the older continents. It is true that our knowledge of the fossil forms of the genus Equus, in Africa, is at present limited; but we have no reason to believe that the particular form in question will be found in that country.

Such is a summary review of the extensive range of the fossil relics of various species of the genus Equus,—found with those of the ox and elephant in tertiary formations, geologically speaking, of a recent era, but really of a distant and mysterious period of time, antecedent to all historic records, perhaps even to man's existence on the surface of the globe. Have these species of *equus* all passed away: has no remnant of one species survived the general fate, continuing its race even to our day? or, as in the case of the fossil species of elephant, are they all specifically distinct from the now existing races? To look at a parallel case: fossil remains of an ox, with large horns, and with skulls, as Cuvier says, "resembling those of the domestic ox," are found in recent deposits, gravels, caverns, &c.; and these Cuvier thinks to be the relics of the ancient urus (not aurochs), and consequently the origin of our domestic breed of cattle, the race of which was continued in a state of freedom after the extinction of the contemporaneous elephant, rhinoceros, deer, bear, and hyæna. Such is also the opinion of Mr. Bell; and we are ready to admit that it is possible (we will not say probable), but it is destitute of proof. In like manner, from one of the species of fossil *equus*, of which perchance a few in some favourable spot survived the general destruction, may the domestic horse have arisen, which under the care of man continued and multiplied, when the last of its wild type had followed the fate of its progenitors. And thus, though no aboriginal wild horse may exist (an opinion entertained by many but not by ourselves), the domestic breed may tread above the fossil remains of primitive ancestors, the associates of the mighty mammoth. This,

we may repeat, is possible, but is unsupported by positive proof. As possible is it also that some of the wild asses, koulan or dziggetai, zebra or quagga, may claim their primæval source from other species whose fossil remains engage the study of the geologist. If, in the case of the ox and the horse, this be the fact, it is, we think, an exception to the general rule, at least as regards the vertibrate section, and especially the mammalia. Passing over the mastodon, the megatherium, the megalonyx, the scelidotherium, the mylodon, the toxodon, dinotherium, and others, which have no living congeners, but looking solely to those which have existing and allied representatives, as the bear, the hyæna, the elephant, the rhinoceros, the armadillo, and others, we believe that in every instance the fossil and the modern extant species are truly distinct. With respect to some of the smaller mammalia, as rodents of various kinds, in which, from the minuteness of the bones, considerable difficulty in coming to a conclusion is experienced, we think that as far as rigid examination has gone, the specific distinctness of those most closely resembling each other has been ascertained. In the case of the large-horned fossil ox, regarded by Cuvier as the type of the domestic race, of which he considers the wild Chillingham ox as an example in an unreclaimed or natural state, and taurus sylvestris, we may observe that the horns in the latter are small, sharp, and curved up, and differ greatly from those huge-spreading osseous cores of the horns of the fossil ox which have come under our notice, some of which have been found to measure nearly four feet in their greatest expansion. The subject is environed with many difficulties, and it is hazardous to be positive, the more especially as we know that numerous fossil and recent bivalve and univalve shells are identical. It is true that in the latter instance the parallel as to the circumstances attending their deposit and that of the relics of mammalia does not hold good. Shells accumulate age after age, at the bottom of bays, in straits, and in shallow, or even in deep seas; there they form beds impacted in mud or

fine sand, the sediment of the waters: by some upheaving agency these masses rise above the surface and become solid rock,—yet the species are not exterminated (unless the water becomes itself changed in quality),—and it will be found that the living testacea around the shores where the fossil shells abound, are of the same species with the imbedded exuviæ. Our observations apply to the tertiary series only, a series replete with extinct vertebrata, not only as respects species, but forms or genera,—forms blotted out of the page of creation; while on the contrary, when we turn to shells, we find that numerous fossil and living species are identical, and of such the number increases in proportion as we ascend from the oldest to the newest strata. In the oldest or eocene deposits of the tertiary series, there occur from three to five per cent. of existing species; in the middle or meiocene deposits, about eighteen or twenty per cent.; but in the newest, or pleiocene deposits, from forty to ninety-five per cent., according to the order or family. Amidst these shells, imbedded in the strata containing them, the remains of utterly extinct mammalia, originally carried into a bay or strait by a river no longer flowing, are frequently to be met with;—the quadruped has disappeared from the face of the earth, but the sea is still the home of living thousands identical with the fossil species entombed with the bones of the megatherium or toxodon. Thus then do we learn that the period of existence allotted to a species among the mammalia is of a far briefer term than the period allotted to the continuation of species among the testacea.

To what cause or causes, it may be asked, are we to attribute the extinction of the fossil species of the genus *Equus?* The same query is applicable to other extinct mammalia. Geological alterations in the surface of the earth, gradual elevations of vast tracts, attended by decided botanical changes, periodical droughts and floods, a combination of agencies which in the present aspect of Europe are not easily appreciable, may have operated in the extinction of races, and prepared the field for

their successors. Of the effects of those periodical droughts which occur in Australia and South America more particularly, a fearful picture is given by Mr. Darwin, which, as it is connected with the subject in question, we shall take the liberty of extracting:—"While travelling through the country (St. Fé) I received several vivid descriptions of the effect of a great drought, and the account of this may throw some light on the cases where vast numbers of animals of all kinds have been embedded together. The period included between the years 1827 and 1830 is called the 'gran seco,' or the great drought. During this time so little rain fell that the vegetation, even to the thistles, failed; the brooks were dried up, and the whole country assumed the appearance of a dusty high road. This was especially the case in the northern part of the province of Buenos Ayres and the southern part of St. Fé. Very great numbers of birds, wild animals, cattle and horses, perished from the want of food and water. A man told me that the deer used to come into his courtyard to the well which he had been obliged to dig to supply his own family with water, and that the partridges had scarcely strength to fly away when pursued. The lowest estimation of the loss of cattle in the province of Buenos Ayres alone was taken at one million head. A proprietor at San Pedro had previously to these years 20,000 cattle; at the end not one remained. San Pedro is situated in the middle of the finest country, and even now again abounds with animals; yet during the latter part of the 'gran seco' live cattle were brought in vessels for the consumption of the inhabitants. The animals roamed from their estancias, and, wandering far to the southward, were mingled together in such multitudes, that a government commission was sent from Buenos Ayres to settle the disputes of the owners. Sir Woodbine Parish informed me of another and very curious source of dispute; the ground being so dry, such quantities of dust were blown about, that in this open country the landmarks became obliterated, and people could not tell the limits of their estates.

"I was informed by an eye witness that the cattle in herds of thousands rushed into the Parana,* and being exhausted by hunger, were unable to crawl up the muddy banks, and thus were drowned. The arm which runs by San Pedro was so full of putrid carcasses, that the master of a vessel told me that the smell rendered it quite impossible to pass that way. Without doubt several hundred thousand animals thus perished in the river. Their bodies, when putrid, floated down the stream, and many, in all probability, were deposited in the estuary of the Platà. All the small rivers became highly saline, and caused the death of vast numbers in particular spots; for when an animal drinks of such water it does not recover. I noticed, but probably it was the effect of a gradual increase rather than of any one period, that the smaller streams of the Pampas were paved with a breccia of bones.

"Subsequently to this unusual drought a very rainy season commenced, which caused great floods. Hence, it is almost certain that some thousands of these skeletons were buried by the deposits of the very next year. What would be the opinion of a geologist viewing such an enormous collection of bones of all kinds of animals, and of all ages, thus buried in one thick earthy mass? Would he not rather attribute it to a flood having swept over the surface of the land, rather than to the common order of things?"

Let us picture to ourselves a more or less gradual elevation of the whole of Europe, attended by periodical droughts of two, three, or four years' continuance,—succeeded by tremendous floods, and with a change in the

* Azara talks of the fury of the wild horses rushing into the marshes during a dry season:—"Et les premiers arrivés sont foulés et écrasés par ceux qui les suivent. Il m'est arrivé plus d'un fois de trouver plus de mille cadavres des chevaux sauvages morts de cette façon."—"Those which arrive first are thrown down and crushed by those who follow. More than once I have found upwards of a thousand carcases of wild horses that had been killed in this manner."

temperature of the atmosphere, affecting the botanical productions of the earth,—let us by this gradual elevation, suppose inland seas, bays, and large lakes, to be converted into sandy deserts or steppes,—and tracts once fertile and clothed with luxuriant vegetation into icy plains, bordered by a frozen ocean,—and we shall find some at least of the causes which may have contributed to the extinction of the mammoth, and the ancient wild horse, and the dispersion of their remains through fluviatile deposits.

That such an elevation as this, which we have assumed has been, and is going on in the great continent of South America, owing, doubtless, to volcanic agency, is abundantly proved;—and it is almost equally demonstrable that it is accompanied by a corresponding depression of the bed of the South Pacific ocean, and its numerous islands, once perhaps forming a large continent, but of which the mountain peaks now only rear their heads above the waters, while many of these even are submerged, and serve the coral polype to build on. The theory of the alternate oscillations of level on the surface of our globe, owing to vast and deeply seated causes, is ably elucidated by Mr. Darwin, in his valuable journal, the perusal of which we recommend to those who wish to pursue the investigation. Well does his accumulation of facts impress upon the mind "the never ceasing mutability of the crust of this our world."

## CHAPTER II.

### ON THE WILD SPECIES OF THE GENUS EQUUS.

Leaving the point in uncertainty as to whether any and what species of the genus Equus may be specifically identical with animals of which the fossil remains alone survive to attest their previous existence, let us take a review of the present species of the genus Equus with which naturalists are acquainted; and remembering that we have two domestic *Equi*, endeavour to ascertain whether among the wild races we can discover their origin. We may premise by observing that the genus Equus is divisable into two or perhaps three sections, by some regarded as genera. In the first the mane and tail are full, long, and flowing; there is no dorsal line, and horny callosities are seated on the inside of both the fore and hinder limbs,—example the horse only. In the second (Gen. *Asinus*, Gray) the tail is furnished with long hair towards the extremity only,—the mane is thin and short,—and horny callosities exist on the inside of the fore legs only,—examples—ass, dziggetai, &c. The third section agrees substantially with the asinine; but in this the markings or stripes, indicated only by the cross-bar of the ass, are greatly multiplied, being more or less generally diffused, and producing a most beautiful effect, like the striping of a tiger. To this group Colonel H. Smith has applied the title of Hippotigris,—examples—zebra, dauw, quagga, &c. These sections are not generic, excepting indeed that in the present day genera are founded on such unphilosophical grounds that more than one instance has occurred in which a male and female bird have been made respectively the types of two distinct genera. The rage for genus-making, and the taste

for obscuring zoological science in a maze of ill-derived technicalities, are characteristics of the day. Onomology is overshrouding zoology, as some parasitic plants do the trees that support them.

Of the zebra or hippotigrine section, we find, as we have said, three, perhaps four species in South Africa,—the zebra, Burchell's zebra or the dauw (pronounced dow), and the quagga. To these, on the authority of Le Vaillant, must be added a wild ass of a pale yellow or Isabelline colour, called by the greater Namaquas the white zebra. It exists, he says, in South Africa, in large herds. We are not aware that other travellers have seen it; but as Le Vaillant was an experienced observer of animals in a state of nature, and expressly says "it is certainly a wild ass," we may safely place the species among those on which farther information is needed.

A striped species of zebra was undoubtedly known to the ancients under the name of hippotigris; and as they were unacquainted with southern Africa, it must have been procured in some portion of that continent accessible to them. We are informed that Caracalla exhibited in the circus an elephant, a rhinoceros, a tiger, and a hippotigris, that is, a tiger-striped horse, so called from its beautiful and regular markings. Of the presence of this animal in northern Africa, no definite accounts reached Europe, until travellers of comparatively recent date made known its existence in Abyssinia and Nigritia. The earliest description of it is by Pigafetta: it is noticed by Lobo as the zeuru of Abyssinia, and by Ludolph as the zeora, or zecora of the Gallas. Bruce states that the zebra is found in Abyssinia, but nowhere, "except in the south-west extremity of Kuora, amid the Shangalla and Galla; in Narea and Caff, and in the mountains of Dyre and Degla."

This species is by many naturalists regarded as the zebra. Mr. Blyth says the zebra "is diffused from Cape Colony to Guinea, Congo, and even Abyssinia, according to Ludolph;" it would appear, however, that this Abyssinian species is not the zebra, but is closely

Zebra.

allied to the dauw, from which Col. H. Smith regards it as being still distinct, and describes and figures it under the name of "Hippotigris Antiquorum, the Congo dauw, or zebra of Pigafetta." It appears to extend its range from the Gareep, or Orange River, into Angola, Congo, and Loanga, and thence through Nigritia into Abyssinia, and the desert of Ethiopia. This species (perhaps only variety) is more graceful and elegant in figure than the dauw of Burchell, found in the plains of south Africa, and is more beautifully marked; the ears are more open, with two black bars and white lips, and the stripes extend lower down the limbs. Col. H. Smith says, "The Abyssinian and Galla chiefs adorn the necks of their horses with a wreath made of the mane of these animals, secured near the throat-band of the bridle. One of these we have examined, and recognised the three colours, white, brown, and black, which formed the bars."

The zebra, or wild paard of the Cape colonists, is gre-

garious, tenanting the mountain ranges from Caffraria eastward to beyond Mozambique, perhaps to Adel and the south of Abyssinia, but this is not certain. It is essentially an inhabitant of rugged mountain districts.

The dauw, or Burchell's zebra, inhabits the vast plains north of the Gareep, associating in large herds, among which it is very common to see the towering ostrich. It is very fleet, but is, nevertheless, often rode down and speared by well mounted hunters.

If the Congo dauw be truly distinct, still its habits are precisely those of the preceding—it scours the plains of the desert.

The quagga tenants the plains of South Africa, and is often seen in vast droves, intermixed with gnus and ostriches. It is a bold powerful animal, and will defend itself resolutely against the hyæna and wild hunting dog. It is sometimes tamed by the Dutch boors, and kept in company with their horses, which it will defend at night against the attacks of beasts of prey. The

Quagga.

predilection of the ostrich for the company of these animals is not a little remarkable. Xenophon observed the same with regard to the ostrich and wild ass of the plains of Syria and Mesopotamia. The ostrich is still found in the great Syrian desert, and more especially in the plains extending from the Haouran to Jebel Shammar and Nejed.

Such, then, are the wild equine animals of Africa, as far as we know at present. With countless herds of antelopes, gnus, hartebeests, with ostriches, and birds and beasts of prey, the lion, the hyæna, and the hunting-dog, they roam the vast solitudes of the interior of southern and central Africa, in the enjoyment of native freedom. Individuals, indeed, of each species have from time to time been reclaimed; but no enslaved race owes to them its primitive origin. From none of them is the domestic horse or ass derived; yet we have seen the domestic ass striped on the lower parts of the limbs like the zebra, when we had no reason to suspect a cross with the latter; and it may be added that mules between the zebra and common ass, partaking of the characters of both, have been bred and trained to labour in the gardens of the Zoological Society. They were remarkably powerful. A mule breed has been procured between a blood mare and quagga, to which we shall hereafter revert.

We shall not enter more minutely into the history of these striped African species, constituting the genus Hippotigris of Col. H. Smith. Their flesh, as is well known, is highly esteemed by the Caffres and other natives.

Let us now leave these animals, and turn to those species which may be called wild asses in contradistinction to the striped zebra species peculiar to Africa. And here, on the outset, we find ourselves in some degree of confusion.

In the Asiatic deserts, travellers have met with wild asses in abundance, and have alluded to them under various names, which renders it difficult to say whether or not they have seen the same, or different species. We have, for example, the dziggetai, or djigguitai, with a

broad dorsal stripe from the withers to the tail, but no shoulder stripe. This is the *Equus Hemionus* of Pallas.

Next we have the khur, or wild ass of Persia, observed by Mr. Ainsworth (' Travels in Assyria, Babylonia, and Chaldea'), near Mount Taurus. This animal is graphically described by Sir Robert Ker Porter (' Travels,' i. p. 459):—" The sun," he says, " was just rising over the summits of the eastern mountains when my greyhound suddenly darted off in pursuit of an animal which my Persians said, from the glimpse they had of it, was an antelope. I instantly put spurs to my horse, and with my attendants gave chase. After an unrelaxed gallop of full three miles, we came up with the dog, who was then within a short stretch of the creature he pursued, and to my surprise, and at first vexation, I saw it to be an ass. Upon a moment's reflexion, however, judging from its fleetness that it must be a wild one, a creature little known in Europe, but which the Persians prize as an object of chase, I determined to approach as near to it as the very swift Arab I was on would carry me; but the single instant of checking my horse to consider had given our game such a head of us, that notwithstanding all our speed we could not recover our ground on him. I, however, happened to be considerably before my companions, when at a certain distance the animal in its turn made a pause, and allowed me to approach within pistol shot of him. He then darted off again with the quickness of thought, capering, kicking, and sporting in his flight, as if he were not blown in the least, and the chase were his pastime.

" He appeared to me to be about ten or twelve hands high; the skin smooth like a deer's, and of a reddish colour; the belly and hinder parts partaking of a silvery grey; his neck was finer than that of a common ass, being longer, and bending like a stag's, and his legs beautifully slender; the head and ears seemed large in proportion to the gracefulness of these forms, and by them I first recognised that the object of my chase was of the ass tribe. The *mane* was short and *black*, as was also a *tuft* which terminated his *tail*. *No line whatever*

*ran along his back or crossed his shoulders*, as are seen in the tame species with us. When my followers of the country came up, they regretted that I had not shot the creature when he was within my aim, telling me that his flesh is one of the greatest delicacies in Persia. The prodigious swiftness and peculiar manner in which he fled across the plain coincided exactly with the description that Xenophon gives of the same animal in Arabia (vide 'Anabasis,' book i.); but, above all, it reminded me of the striking portrait drawn by the author of the Book of Job.

"I was informed by the mehmendar who had been in the desert when making a pilgrimage to the shrine of Ali, that the wild ass of Irak Arabi differs in nothing from the one I had just seen. He had observed them often for a short time in the possession of the Arabs, who told him the creature was perfectly untameable. A few days after this discussion we saw another of these animals, and pursuing it determinedly, had the good fortune, after a hard chase, to kill and bring it to my quarters. From it I completed my sketch."

There is in Persia besides, an animal called goor-khur, ghore-kur, gur-khor, gour-khor, and gour,—which some naturalists suspect to be distinct from the khur, but we know not on what positive grounds. The Hon. Mountstewart Elphinstone, in his account of the kingdom of Caboul, notices it as an inhabitant of the deserts between India and Affghanistan. He names it goor-khur, and says that it is called gour (khur ?) by the Persians, and that it is usually seen in herds, though often singly, straying away in the wantonness of liberty.

Again, Moorcraft, in his 'Travels in the Himalayan Provinces,' notices a species called kiang. He says, "In the eastern parts of this country (Ladakh) is a nondescript wild variety of horse which I may call equus kiang. It is perhaps more of an ass than a horse, but its ears are shorter, and it is certainly not the gurkhor, or wild ass of Scinde. Its activity and strength render its capture difficult." Subsequently he adds: "we saw many herds of the kiang, and I made various attempts

to bring down one, but with invariably ill success. Some were wounded, but not sufficiently to check their speed, and they quickly bounded up the rocks, where it was impossible to follow. They would afford excellent sport to four or five men well mounted, but a single individual has no chance. The kiang allows his pursuer to approach no nearer than five or six hundred yards. He then trots off, turns, looks, and waits until you are almost within distance, when he is off again. If fired at he is frightened, and scampers off altogether. The Chan-than people sometimes catch them by snares, sometimes shoot them. From all I have seen of the animal, I should pronounce him to be neither horse nor ass. His shape is as much like that of the one as the other, but his cry is more like braying than neighing. The prevailing colour is light reddish chesnut, but the nose, the under part of the jaw and neck, the belly and legs, are white; the mane is dun and erect, the ears are moderately long, the tail *bare*, and reaching a little below the hocks; the height is about fourteen hands. The form, from the fore to the hind legs and feet, and to a level with the back, is more equal than that of an ass. He is perhaps more allied to the quagga, but is without stripes, except a reported one along each side of the back to the tail. These were distinctly seen in a foal, but were not distinguished in adults."

We have next a wild ass, described by Bell in his 'Travels' as occurring in the country of the Tzulimm Tartars. These animals, of which he saw many skins, he says, "have in all respects the tail and hoofs of an ordinary ass, but their hair is waved white and brown, like that of a tiger." Was it one of these animals which Bishop Heber saw at Barrackpore, in the menagerie of the governor-general of India, and which he says (most probably from incorrect information) came from the Cape of Good Hope? "It is extremely strong, bony, of beautiful form, has a fine eye and good countenance, and although not striped like the zebra, is beautifully clouded with different tints of ash and mouse colour."

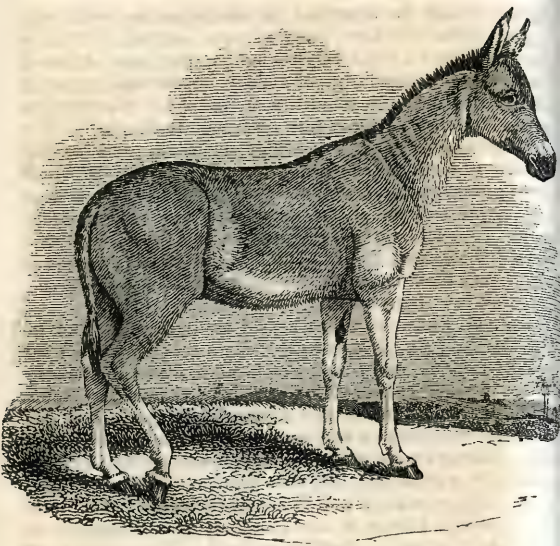
We have next the koulan, onager, or wild ass of

Pallas, which he describes as silvery white, with the upper part of the face, sides of neck, and body flaxen; the hind part of the thighs, belly, and legs white; a longitudinal dorsal stripe of a deep copper colour, and a cross stripe over the shoulders of the *male* only (?). In winter the coat becomes fine, soft, and *undulated*.

This koulan inhabits the high mountain parts of the deserts of Great Tartary, not higher than lat. 48°, and is migratory in its habits, arriving in vast troops to feed during the summer in the tracts north and east of Lake Aral. About autumn the multitudes which had dispersed themselves collect again, forming vast squadrons, and direct their course to the north of India and Persia. Its flesh is in high request.

Col. H. Smith describes a wild ass under the name of Yo-To-Tzé (*Asinus equuleus*), from a specimen which he saw in London, and which was brought from the Chinese frontiers north-east of Calcutta. It was somewhat under three feet in height at the withers; the profile of the chaffron was straight, the mouth small, the nostrils delicate; the ears were only four inches long, with the tips suddenly contracted, and then again slightly dilated; their insides white; the upper third black; the neck was ewe-like with a coarse abundant mane, longer than in the ass, but still standing upright. The tail did not reach the hocks by six inches, and was scantily supplied with long hair nearly to its root. No tubercles on the hind legs. Limbs clean but strong. The general colour was a reddish clay, the tips of the ears, the mane, and long hair on the tail, black; a well defined black line along the back, with a broad cross-bar over the shoulders, and three or four cross streaks over the knees and hocks. On reviewing these several animals we think them resolvable into,

1st. The dziggetai or diggetai (*Equus Hemionus*, Pallas), characterized by a simple dorsal line of dark brown. This is the great wild ass or ghoor-khur, of which specimens have existed in the menagerie of the Zoological Society; one was brought from Cutch, and the other most probably from the coast of Scinde, Cutch,



Dziggetai.

or Persia. Its range is very extensive; it spreads through Bucharia to the deserts of Cobi, and thence to Tartary, Thibet, and South Siberia. It is also found in India, and is described by Colonel Sykes as the wild ass of Cutch. He observes that it is not found further south in India than Deessa on the banks of the Bunnas river, in lat. about 23° 30′, nor had he heard of it eastward of the 75° of longitude, on the northern side of the Himalayan mountains. In Cutch and Northern Goojrat it frequents the salt deserts and open plains of Thoodpoor, Jaysulmer, and Bickaneor. By swimming the Indus it may communicate through Scinde and Baloochestand with Persia. Everywhere it delights in salt

marshes. Its fleetness and hardihood are extraordinary. "My friend Major Wilkins (says Colonel Sykes), of the cavalry of the Bombay army, who was stationed with his regiment for years at Deessa, on the borders of the Run, or salt marshes east of Cutch, in his morning rides used to start a particular wild ass so frequently that it became familiar to him, and he always gave chase to it, and though he piqued himself on being mounted on an extremely fleet Arabian horse, he never could come up with the animal." This is, we suspect, the ghoorkhur or gour, which the Honourable Mountstewart Elphinstone notices as living in the deserts between India and Affghanistan, where it is usually seen in herds. It is doubtless migratory.

2. The khur, or wild ass of Persia, figured and described by Sir Robert Ker Porter. This species has neither dorsal stripe nor cross; it is smaller than the dziggetai, and the head is larger and heavier in proportion. It is the hamar or hymar (Asinus hamar) of Colonel H. Smith, and he says probably the chamor of the Hebrews. It appears to be more solitary in its habits than most of its congeners.

3. The kiang (Equus kiang) described by Moorcraft, which he says is decidedly not the Dziggetai, or wild ass of Scinde. It was observed in the eastern parts of Sadakh. We have yet to learn everything respecting this species.

4th. The onager, koulan, or wild ass (*Equus Onager*), distinguished by a dorsal stripe and decided cross-bar over the shoulder. As we have said, the winter coat of this species becomes fine and *undulated;* and we suspect that a wavy style of colouring is meant by Pallas, Pennant, and others, in which case we see not why the wild ass noticed by Bell in the country of the Tzulimm Tartars, the hair of which is waved white or brown, should be regarded as distinct. The same observation applies to the animal seen by Bishop Heber at Barrackpore. The koulan is found in the country of the Kerguise, the Bucharians, and Kalmucs; it occurs in Northern Persia, where it meets the Hamar; it is the

baja mural of the Tartars, and the *οναγρος* of the ancients. It would appear that the terms gour, ghur, ghore-khur, &c. are applied to this species, to the dziggetai and to the hamar, and are, in consequence, very loosely used.

We learn from various authorities, that the wild ass is found west of the Euphrates, and is spread over Syria, Arabia Petræa, and Northern Africa. Burckhardt observes that wild asses are found in great numbers in Arabia Petræa, near the Gulf of Akaba. "The Sherarat Arabs hunt them, and eat their flesh, but not before strangers. They sell their skins and hoofs to the pedlars of Damascus, and to the people of the Haouran. The hoofs furnish materials for rings, which are worn by the peasants on their thumbs, or fastened under the armpits as amulets against rheumatism."

Rauwolf, travelling from Tripoli to Aleppo, says, "In these countries are a great many wild asses called onagri." He then proceeds to describe the use made of their skins in forming the scabbards of swords and daggers. Wild asses are common in the Thebaid, and are mentioned by Marmol as abundant above the cataracts; a wild ass is mentioned (p. 571) in the narrative of Lander's expedition. In the island of Socotra, off Cape Guardafui, Lieutenant Willsted remarks that, "Amidst the hills over Tamarida, and on the plains contiguous to it, there are a great number of asses, which were described to me as different from the domestic ass; but after repeated opportunities of examining them, I could find no reason for such a distinction." He considers them as emancipated animals, set free on the introduction of camels; adding, "they wander about in troops of ten or twelve, evincing little fear unless approached very near, when they dart away with much rapidity" ('Jour. Geog. Soc.' 1835, p. 202). May not these be real wild asses—koulans? from their manners we should be inclined to believe so.

This species is the djaar of the Arabs; and Col. H. Smith informs us that it is said formerly to have been found on the Canary Islands. Leo Africanus states that

Wild Ass.

wild asses of an ash colour inhabit the deserts of Northern Africa. The foal of the wild ass (*Lalisio*) was a favourite dish among the Romans (as were also sucking puppy-dogs). According to Pliny, those obtained in Africa were esteemed the best for the table by the epicures of that day:

> "Cum tener est onager, solâque, Lalisio, matre
> Pascitur; hoc infans, sed breve nomen habet."*
> *Martial.*

Adults, however, were captured for the combats of the amphitheatre, where they fought with great courage and obstinacy, as indeed will the domestic ass when urged by necessity to defend itself.

5. The Yo-To-Tzé (*Asinus equuleus*) of Col. H. Smith. We have never seen an example of this animal, which no one previously to Col. H. Smith had described or figured. The individual he examined was said to come from some part of Chinese Tartary. It is upon this learned naturalist's authority only that we set this animal down as a distinct species; not, however, without a suspicion that it might have been a dwarf variety of the dziggetai.

Before leaving the wild races of the asinine group, we may observe that Col. H. Smith considers the kiang as a wild horse, not ass, and the root of the piebald breed of horses, a breed of great antiquity (see Zechariah i. 8), and highly valued in the middle ages. He says, "Although we possess a series of drawings of the pied form of horses, derived from Indian, Tahtar, and European specimens, it is to be regretted that of the kiang, in either his winter or summer coat, *no trustworthy figure has ever reached us*. We therefore have been compelled to offer a specimen of one of the domesticated breeds of horses, known, it appears, in India by the name of the Targum race, which came from Sikim, in Lower Thibet. It appears to be taller than the 'tanghers' of the hills near Katmandoo." His reason for regarding the kiang

* When the wild ass is tender, and is fed by the mother only, it is called Lalisio: it has this name when very young, and but for a short time.

as a horse, is, first, that Moorcroft denies it to be the dziggetai or great ghoor-khur; and secondly, that the wild horse mentioned by Dr. Gerrard in his observations on the Skite valley ('Asiat. Res.' xviii. pl. ii. 247) must be the kiang. "Horses alone," says Dr. Gerrard, "undergo the transition from the elevated pastures; but they lose the woolly covering that invests the roots of their long hair." Comparing this animal with the domestic horse, he further remarks, "both would appear to have the same origin; yet the circumstance of their eluding every effort to tame them when caught, and their uniform *speckled colour of fawn and white*, demonstrate them to be a distinct species." This distinctness, however, is denied by Col. H. Smith.

If we turn to Moorcroft's account of his kiang, we shall find that he does not describe it as mottled or speckled, and, moreover, expressly states that the tail is *bare—asinine* in character, and he compares the animal to an unstriped quagga. With *Moorcroft's account*, and *without a trustworthy figure*, we must pause before we coincide with Col. H. Smith's opinion. It is true that Moorcroft, in the account of his journey to Lake Manasurovara ('Asiat. Res.' vol. xii.), remarks that "the wild horse (*E. quagga*), the wild ass (*ghoor-khur*, *onagra*), and, I believe, the mule, the offspring of these animals, are found in abundance on the mountains of Tartary." And again (p. 462), "This day we saw more wild horses than on any former one, also several wild asses of the kind called gurkhor, and, I believe, the mules. The asses are little less than the horses." At page 512 he again notices the occurrence "of many wild mules, and some animals which are thought more like mules than either horses or asses." In these passages where "wild horse" is mentioned we are not sure that the kiang may not be intended; but his observation that the kiang is quagga-like, would lead us to suppose, if the kiang be meant, that the term "wild horse" is used in a general sense, or if not, merely by way of contradistinction to wild ass or ghoor-khur. In the 'Trans. of Royal Asiat. Soc.' i. 55, the kiang is described as "a nondescript wild variety of horse which appeared to be of about fourteen

hands high, of a round muscular form, with remarkably clean limbs. Not more than a dozen came in view, and they were all out of shot. A native of the district was desired to lie in wait, and a suitable remuneration was offered for the skin, head, and organs of voice for dissection. The man has completed his task, and I shall have these matters as soon as the pass of Changlung will admit of being traversed." Unfortunately, the death of Mr. Moorcroft subsequently took place, and we have yet to learn the characters at full of his quagga-like kiang.

Such is the general amount of information which we possess respecting the wild asses of the Asiatic deserts, from one or more of which the various breeds of our domestic animal, so much undervalued and so harshly treated, may be derived. How unlike is this patient laborious slave of a cruel tyrant, to the free-born wild ass of the desert, "that snuffeth up the wind at its pleasure!" As in the case, however, of the quagga and dauw, individuals have been captured and domesticated. M. Duvaucel saw a tamed breed of dziggetais working along with asses at Lucknow; and Col. H. Smith thinks that either the onager or hemionus were anciently trained to draw chariots of war or peace.

Having thus given a succinct sketch of the wild species of the asinine group of the genus Equus, as far as any clear and authentic details enable us to go, let us endeavour to ascertain whether any and what wild species of the equine group or true horse can be substantiated.

There is a very general and strong feeling among naturalists, that no genuine wild horses are in existence; that those so called are feral or the emancipated descendants of a tame race, which on the recovery of their liberty have resumed the wild habits of the species, and perhaps in some measure regained their primitive external characters. That highly talented zoologist Mr. Bell, in his 'British Quadrupeds,' says—"The early history of the horse is involved in much obscurity. It is, indeed, only in the Sacred Writings that we have any probable trace of its original subjugation, or even a hint to what nation the world is indebted for so valuable a boon. Its

natural history is no less doubtful; for there is every reason to believe that it has long since ceased to exist in a state of nature, and that, like some other domestic animals, not a single indication remains by which we can judge of the form, the colour, or the habits, by which it was characterised before it became the servant of man, or how far it may have differed from the present domesticated races." Again, "The wild horses which are now to be found in several parts of the world afford us no clue to the clearer elucidation of their original character. They appear in all cases to have been derived from a domesticated stock. On the plains of Tartary there still exist numerous troops of these animals, which evince, however, no mark of being originally indigenous in that country."

That herds of emancipated horses exist in the wilder tracts of the old world, and in North and South America, the origin of which may be traced, is not for a moment disputed; but we cannot legitimately argue from this admission, that no genuine wild horses scour the plains of Tartary and Mongolia. At the same time we must admit with caution the vague and hasty assertions of early historians and travellers, who would scarcely draw any difference between wild and feral horses, or between these and the dziggetai, partly because such nice points in natural history were not attended to, and partly because a doubt of the wild animals they saw being aboriginally so might not cross their mind. Yet, seeing that wild horses, no matter whence sprung, do exist in the vast deserts of Asia and Eastern Europe, and, retiring to impenetrable fastnesses, mountain chains, and deep solitudes, bid defiance to man, elude his pursuit, and maintain their independence, are we to suppose that on the subjugation of a few at some remote period, by various tribes, the whole wild race passed away? or that man was so fortunate as to take, educate, and preserve the last relics of a wild race on the eve of extinction? a race—

> "Cujus *extremum* trepidavit ætas
> Claudere lustrum!" *

* Whose age has hastened to close its last period.

Are we to believe this, and yet acknowledge that in the present day (when wandering hordes once thinly scattered have become mighty nations, and the deadly gun has supplanted the hunter's bow and spear) wild horses escaped from bondage are capable of maintaining an independence which in the primeval ages of man's strife and toil upon this globe their free-born progenitors utterly lost? We question such a theory. It may be asked, where is the wild camel, the wild sheep, the wild ox, the wild goat? Show the wild stocks of our ordinary domestic animals, and then talk about original wild horses. With respect to the camel, it is only fitted for certain isolated localities, in which its extirpation or subjugation presents no great difficulties; and, as we may glean from the Scriptures, wholesale must have been its subjugation. The camel does not multiply rapidly, yet Job possessed 3000 camels; and we read that the Reubenites took from the tribe of the Hagarites of camels 50,000, of sheep 250,000, and of asses 2000 (1 Chron. v. 21). Other passages might be adduced. Besides, the existence of the camel in a wild state in Arabia is asserted by Diodorus and Strabo; and, according to Desmoulins, it so existed in the time of Hadrian. We learn also that in some parts of Central Africa, where Europeans have never penetrated, wild camels are asserted by the natives to exist. There are also, according to Pallas, who obtained his information from Bucharians and Tartars, wild camels in the deserts of Middle Asia. We have yet to learn positively whether these are emancipated, or originally wild. With respect to the sheep and goat, they are so crossed by different species, so altered by climate and the breeder's art, that it is no easy matter to know what their primitive stock really may be. The sheep may be the descendant of several species of mouflon, interbreeding with each other; and many wild mouflons exist throughout the mountain chains of Asia and Eastern Europe. In like manner we may regard the goat as of mixed parentage. The ordinary goat of Europe is probably the descendant of the ibex of the Alps and Pyrenees. The same observations apply to our domestic cattle. But we

must remember that the huge-horned urus of Cæsar, a different species from the aurochs of Lithuania, the bonassus of Aristotle, the bison of Pliny (still called bisent or wisent in some parts of Germany), roamed over the hills and plains of Central Europe in the time of that great warrior; and that various species of wild ox, which may have contributed to modify the race, as the gour-ox, exist in India. But if we are to believe some naturalists, though wild species of the asinine group still exist, no truly wild species of the equine section lingers in the remotes and solitudes of the Asiatic deserts. Now, though we admit the difficulty of tracing our domestic animals or rather quadrupeds to their precise source, yet there is not one that has not truly wild congeners of the closest affinity, unless, indeed, the camel, and the horse of the restricted genus Equus, are to be regarded as exceptions. This fact being incontestable, we ought, before the horse be considered as an exception to the rule, to be quite sure that none of the wild breeds are so in the true sense of the word, instead of taking it for granted, and *that* on mere opinion. Is it because the wild horses so nearly resemble the domestic breeds, that a reluctance to admit their claims is entertained? Surely we do not expect to find wild horses anything but horses; and though long domestication, climate, and the care of the breeder may have impressed their signs on the reclaimed race, still, in the main essentials, in those features which recommended this animal at first to man as a most valuable and efficient servant, and in those characters which distinguish between the horse and the ass or dziggetai, the true wild horse must be identical with the domestic. The former may be rougher, heavier in the head, lower at the withers, wilder in aspect, with higher instinctive faculties, and of more recluse and suspicious temper than the latter; but here the amount of real distinction must end; and in this opinion we are the more confirmed because from the time of Job—from the days of the chariot-driving Pharaoh to the present—the horse, as figures and sculptures prove, has continued essentially the same. Though by no means unsusceptible of modification, it has

not the same physical pliability as the dog; and its utility, though of the utmost importance, is limited to a more circumscribed routine. The horse is essentially an animal of burden or draught. In the first case, it may bear its rider into the mêlée of battle, scour with him over the plain, transport him in his migrations, or carry him through the toilsome chase. In the second case, it may dash along with his war-chariot, it may drag his heavy car, the plough, the harrow, or the cart; it may apply its force to machinery, or strain at the loaded barge on the winding canal, but still, *carriage* and *draught* are the labours for which it is fitted by nature; hence, therefore, is it that we may expect to find the wild horse the same, though ruder than the descendant of a long line of reclaimed ancestors interbred for special purposes.

If we are to credit ancient authorities, wild horses, termed by Oppian hippagri, by Pliny equi-feri, existed in Scythia, Thrace, along the Danube, and even in Europe. In Spain, according to Varro, in Sardinia and Corsica; in Eastern Europe from the Pontus northwards into unknown regions. We are informed by Oppian that the wild horse existed in Ethiopia, and, according to Julius Capitolinus, it was from Africa that the Gordians were said to have procured eighty wild horses for the spectacles of Rome. A more modern authority, Leo Africanus, states that wild horses exist in North Africa, and though seldom to be seen and rarely to be captured by the hunters with dogs, they may be taken by means of snares disposed about the fresh-water springs to which they resort. Their flesh is eaten by the Arabs.

It would appear that in the wild forests of Poland and Prussia there were wild horses up to a comparatively late period. "Beauplan," says Col. H. Smith, "asserts their existence in the Ukraine; and Erasmus Stella, in his work 'De Origine Borassorum,' speaks of the wild horses of Prussia as unnoticed by Greek and Latin authors. "They are," he writes, "in form very like the domestic species, but with soft backs, unfit to be ridden; shy and difficult to capture, but very good

venison." These horses are evidently again referred to by Andr. Schniebergius, who states that "there were wild horses in the preserves of the Prince of Prussia resembling the domestic, but mouse-coloured, with a dark streak on the spine, and the mane and tail dark. They were not greatly alarmed at the sight of human beings, but inexpressibly violent if any person attempted to mount them. They were reserved for the table like other game." The colour of these horses is remarkable, resembling that of the dun domestic breed, with a black dorsal stripe, not often to be met with in England: perhaps this breed is derived from the wild race in question.

Pennant, who drew his materials from Pallas and other sources, informs us that wild horses exist about Lake Aral, near Kuzneck; in lat. 54°, on the River Tom in the south of Siberia, and in the great Mongolian deserts. The Mongols call them takija. They are less than the ordinary domestic horse, of a mouse-colour (dun), and are clothed with thick hair, especially in the winter. They associate in large herds, and often surround the horses of the Mongols and Kalkas, and carry them away. Fleet as they are, they are often surprised and killed by the Kalmucs with lances. Their flesh they account excellent, and their skins are very serviceable, being cured for beds.

Pennant, after describing these wild horses, states that a distinction must be made between these animals and those in the deserts on each side of the Don, particularly towards the Palus Mæotis and the town of Bachmut; for these latter are feral or emancipated, being the offspring of Russian horses employed in the siege of Azoph in 1697, when, for want of forage, numbers were turned loose to wander at will. They are chased by the Cossacks in winter, are excessively swift, and when taken young, easily reclaimed. They are valued for strength and hardihood.

Pennant alludes to the assertion of Leo Africanus as to the existence of wild horses in the African deserts.

How far the distinction between these supposed

emancipated horses and the truly wild races really exists is not very plain, nor is it very material to ascertain. Probably there is more or less intermixture between them, for it is not quite certain that the males turned loose at the siege of Azof, or Asoph, were capable of breeding. Col. Hamilton Smith, a writer of no trifling authority, and who has had opportunities of obtaining personal information on the subject, in the very regions tenanted by these wild horses, gives us some interesting details, supplied by persons on whose accuracy he had every reason to rely. Though the passage is long, we must take the liberty of extracting it entire, as it is impossible to condense the details into a short summary.

"Whatever may be the lucubrations of naturalists in their cabinets, it does not appear that the Tahtar or even the Cossack nations have any doubt upon the subject, for they assert that they can distinguish a feral breed from the wild by many tokens; and naming the former takja and muzin, denominate the real wild horse tarpan and tarpani. We have had some opportunity of making personal inquiries on wild horses among a considerable number of Cossacks of different parts of Russia, and among Bashkirs, Kirguise, and Kalmucs, and with a sufficient recollection of the statements of Pallas and Buffon's information, obtained from M. Sanchez, to direct the questions to most of the points at issue. From the answers of Russian officers of this irregular cavalry, who spoke French or German, we drew the general conclusion of their general belief in a true wild and untameable species of horse, and in herds that were of mixed origin. Those most acquainted with a nomadic life, and in particular an orderly Cossack attached to a Tahtar chief as Russian interpreter, furnished us with the substance of the following notice. The tarpani form herds of several hundreds, subdivided into smaller troops, each headed by a stallion; they are not found unmixed excepting towards the borders of China; they prefer wide, open, elevated steppes, and always proceed in lines or files,

usually with the head to windward, moving slowly forward while grazing, the stallions leading, and occasionally going round their own troop. Young stallions are often at some distance, and single, because they are expelled by the older, until they can form a troop of mares of their own; their heads are seldom observed to be down for any length of time; they utter now and then a kind of snort, with a low neigh somewhat like a horse expecting its oats, but yet distinguishable by the voice from any domestic species, excepting the woolly Kalmuc breed. They have a remarkably piercing sight, the point of a Cossack spear at a great distance on the horizon seen behind a bush being sufficient to make a whole troop halt; but this is not a token of alarm; it soon resumes its march, till some young stallion on the skirts begins to blow with his nostrils, moves his ears in all directions with rapidity, and trots or scampers forward to reconnoitre, the head being very high, and the tail out; if his curiosity is satisfied, he stops and begins to graze; but if he takes alarm, he flings up his croup, turns round, and with a peculiarly shrill neighing warns the herd, which immediately turns round, and gallops off at an amazing rate, with the stallions in the rear, stopping and looking back repeatedly, while the mares and foals disappear as if by enchantment, because, with unerring tact, they select the first swell of ground, or ravine, to conceal them, until they re-appear, at a great distance, generally in a direction to preserve the lee-side of the apprehended danger. Although bears and wolves occasionally prowl after a herd, they will not venture to attack it, for the sultan-stallion will instantly meet the enemy, and, rising on his haunches, strike him down with his fore-feet; and should he be worsted, which is seldom the case, another stallion becomes the champion; and in the case of a troop of wolves, the herd forms a close mass, with the foals within, and the stallions charge in a body, which no troop of wolves will venture to encounter. Carnivora, therefore, must be contented with aged or injured stragglers.

"The sultan-stallion is not, however, suffered to

retain the chief authority for more than one season without opposition from others rising, in the confidence of youthful strength, to try by battle whether the leadership should not be confided to them, and the defeated party driven from the herd in exile. These animals are found in the greatest purity on the Kara Koom, south of the lake Aral, and the Syrdaria, near Kusneh, on the banks of the river Tom, in the territory of the Kalkas, the Mangolian deserts, and the solitudes of the Gobi. Within the Russian frontier there are, however, some adulterated herds, in the vicinity of the fixed settlements, distinguishable by the variety of their colours, and a selection of residence less remote from human habitations. Real tarpans are not larger than ordinary mules; their colour is invariably tan, Isabella, or mouse, being all shades of the same livery, and only varying in depth by the growth or decrease of a whitish surcoat, longer than the hair, increasing from Midsummer, and shedding in May; during the cold season it is long, heavy, and soft, lying so close as to feel like a bear's fur, and then is entirely grizzled; in summer much falls away, leaving only a certain quantity on the back and loins; the head is small; the forehead greatly arched; and the ears far back, either long or short; the eyes small and malignant; the chin and muzzle beset with bristles; the neck rather thin, and crested with a thick rugged mane, which, like the tail, is black, as are also the pasterns, which are long; the hoofs are narrow, high, and rather pointed; the tail, descending only to the hocks, is furnished with coarse and rather curly or wavy hairs, close up to the crupper; the croup is as high as the withers. The voice of the tarpan is loud, and shriller than that of a domestic horse; and their action, standing, and general appearance resemble somewhat those of vicious mules. Such is the general evidence obtained from the orderly before mentioned; a man who was a perfect model of an independent trooper of the desert, and who had spent ten or twelve years on the frontier of China."

Several distinctions, with regard to habits, appear to

exist between the wild tarpans and the feral muzin. The former are regularly migratory, proceeding on the approach of summer to the northern latitudes, and returning on the approach of autumn; in the winter they resort to high grounds where the winds have swept away the snow, or where it is so much disturbed that they can dig through it with their feet to the buried herbage. They dislike water, and refuse to cross rivers; yet with singular address they thread their way through extensive swamps, apparently guided in their choice of the fordable passes by the sense of smell, a tried leader pioneering the way, and followed by the herd. Their indocility is extreme. Doubtless by judicious methods they may be reclaimed; but when captured they often break their necks during their violent struggles; and if not, turn sulky, and pine till they die. In fighting they rise up, strike with the fore-limbs, try to crush their foe, and bite furiously. Towards domestic horses they are said to evince great animosity, attacking and endeavouring to destroy them. We should suppose that this account refers only to the males; otherwise how comes it that there are herds of the mixed races?

The muzin or feral horses vary in colours, and have the head larger and the neck shorter than the tarpans; they stray in feeding, and scatter themselves more irregularly; nor is their migration definite, their wanderings being rather directed by the abundance of pasturage than by a fixed routine to which instinct impels them. They court the society of the domestic breed, but have often a few expelled stallions of the tarpan race amongst them; and the more that the tarpan blood prevails in the troop, the more do they display the manners of the wild race, and the more do they avoid the precincts of man. The young, when captured, though at first obstinate, are in due time subdued to bondage.

Col. H. Smith alludes to the woolly Kalmuc breed kept in a domestic state among the wandering Tartars. In the Museum at Paris is the specimen of a horse entitled "Cheval Bashkir;" it is covered with fur somewhat like that of a white llama. The head is heavy, the

limbs moderate, the ears short and pointed, and the lower jaw bearded like that of a goat. Herodotus, speaking of the Sigynes, a nation inhabiting the wild deserts north of the Danube, describes them as having horses covered over with hair like bristles, five fingers long, low in stature, unable to carry a rider, having short noses turning upwards, and yet capable of drawing chariots with swiftness, for which purpose they are employed. Of these he only heard by report, and though the details are exaggerated, still it seems very probable that this peculiar and perhaps original breed of semi-wild horses is intended. This woolly horse occurs in a wild state in the Kara Koom and the Pamere, an elevated plateau destitute of trees, but covered with pasturage, and giving rise to the rivers Oxus and Jaxartes; and it is from this source that the Bashkirs and Kirguise have derived the domestic woolly breed. These animals are low at the shoulder; the colour is grisly white, somewhat darker in the summer; the coat consists of an underlayer of soft woolly hairs and an outer covering of hard shining hairs, and it is to these perhaps that Herodotus refers when he describes the hair of the horses of the Sigynes as resembling very long bristles. To revert to the statement by Pennant, that the wild horses on the banks of the Don are the freed descendants of numbers abandoned at the siege of Azof, about the year 1697,—though we dispute not the circumstance, still what are we to say to the fact that abundant testimony may be adduced to prove that wild horses existed in those very regions ages prior to such an occurrence? Whence then was *their* origin? That they sprung from a domestic source remains to be proved; to assert it merely, is a gratuitous assumption, quite as much so as to say the horse never existed as a wild animal at all in the present condition of the surface of our earth. This opinion, however, no one will venture to hazard. What, then, it may be asked, has happened to immolate a whole race of animals, save and except the fortunate slaves,—animals, from their fleetness, their power, their courage, and their wariness and caution, of all others the most

likely to maintain their ground in the vast elevated deserts, as yet unexplored, stretching from eastern Europe through the centre of Asia? These deserts, intersected by mountain ranges, and bordered north and south by mountain ranges giving birth to mighty rivers, and replete with lakes resembling inland seas, were to the ancients a *terra incognita*, and such they still remain. Here now exist troops of wild horses, which maintain their ground—why must they necessarily be of domestic origin? Surely if animals of domestic origin can *now* maintain their ground, a wild race could; and if so, where is the proof it has not from remote antiquity? We have already stated that Oppian assigned a species of wild horse to the deserts of Ethiopia, and that Leo Africanus asserts the existence of such an animal in the wilds of Northern Africa. Under the name of koomrah (*Equus Hippagrus*) Col. H. Smith describes a wild equine animal, which, till his notice of it appeared, had escaped the observation of naturalists. For ourselves, we have never seen a specimen, and it appears to be an animal of great rarity.

The koomrah, unlike the wild horse of Asia, is not gregarious; it inhabits the mountain forests, coming down to the wells and drinking-springs in small families or singly, and is there liable to be attacked by men, as well as by hyænas and other beasts of prey: its wariness, its keen sense of smell, its fleetness, and its instantaneous and rapid retreat up the mountains to its forest cover, render it, in spite of all attacks, very difficult to be surprised and taken or killed: it is said, moreover, to defend itself courageously, biting very fiercely when brought to bay. Col. Hamilton Smith says, "Of the real koomrah we have seen a living specimen in England, and the skin of another. The first came from Barbary, the second died on board of a slave-ship on the passage from the coast of Guinea to the West Indies in 1798, the skin, legs, and head having been carefully preserved by the master, who kindly permitted a sketch and notes to be made of it at Dominica.

"The koomrah of the mountains is about ten or ten

and a half hands high; the head is broad across the forehead, and deep measured to the jowl; it is small, short, and pointed at the muzzle, making the profile almost triangular; instead of a forelock between the ears, down to the eyes the hair is long and woolly; the eyes are small, of a light hazel colour, and the ears large and wide; the neck thin, forming an angle with the head, and clad with a scanty but long black mane; the shoulder rather vertical and meagre, with withers low, but the croup high and broad; the barrel large; thighs cat-hammed, and the limbs clean but asinine, with the hoofs elongated; short pasterns, small callosities on the hind legs, and the tail clothed with short fur for several inches before the long black hair begins. The animal is entirely of a reddish bay colour, without streak or mark on the spine, or any white about the limbs. We made our sketch at Portsmouth, and believe it refers to the same animal which lived for many years, if we are rightly informed, in a paddock of the late Lord Grenville's. There was in the British Museum a stuffed specimen exactly corresponding in size and colour, but with a head (possibly in consequence of the taxidermist wanting the real skull) much longer and less in depth. The other specimen, which came from the mountains north of Accra in Guinea, was again entirely similar. We were told that in voice it differed from both horse and ass; and in temper, that which died on shipboard, though very wild and shy at first, was by no means vicious, and fed on sea-biscuit with willingness."

We are informed that the hinny, or mule, between the male horse and female ass, is occasionally shown among the Arabs and Shellahs as the koomrah. Of these mules some are gray, others black; they must not be confounded with the real wild koomrah, which Col. H. Smith asserts to be a genuine species, and one known to the ancients, perhaps the boryes of Herodotus, the bourra of Koldagi. (See Herodotus, 'Melpomene,' iv., for an account of the animals of Libya.)

Here then we have a true wild horse of Northern Africa; and if, as we think they are, our arguments are

to be trusted, a true wild horse in the vast table-lands of central Asia, from the Don and Volga, through the Kirguise wilderness, Great and Little Bucharia, Turkestan, Sangaria, Kalmoukia, and the great desert of Cobi, Mongolia, and the region of the Kalkas and Soyoti. Over such parts of this enormous extent of territory as Europeans have visited, or of which they have obtained accounts, horses living in a state of nature, and herding in troops, each headed by "one mighty steed," are known to roam. Without any reason, except that it was received as the opinion of Pallas (though he never decidedly advanced it), naturalists, with few exceptions, have all concurred in regarding these horses as the descendants of an emancipated race; but when, and under what circumstances, emancipated, we are left to discover as we may. The Gordian knot is cut, because it is easier so to do than disentangle its intricacies. Surely we may as reasonably argue that the wild duck is nothing more than an emancipated descendant of a tame race, and adduce as a proof that in our sheets of water in various places we have breeds between the tame and wild races. The assertion is gratuitous, the argument pointless.

From the free-born horses of Asia, some of which are between the true wild breed and the domestic, as may be expected, in the stronghold of the wild horse, traversed by horsemen of nomadic habits time immemorial—themselves the breeders and reclaimers of horses—let us turn to an acknowledged feral or emancipated race, viz., the semi-wild horse of America. Our subject demands a separate chapter.

## CHAPTER III.

### THE SEMI-WILD HORSE OF AMERICA.

We have already stated that at a remote period, *geologically* recent as it may be called, a species of the genus *Equus* was associated with the mastodon, the megatherium, the megalonyx, the mylodon, and other extinct beings, the remains of which fill the mind of the reflective student of nature with wonder and admiration. They once roamed over plains, through swamps, or vast forests; but ages rolled on—agencies, the effects of which were perhaps at first but little felt, gradually increased in extent and severity, thinning their numbers, till at last came the climax, and of all that were then living none survived. Their existence became a blank; and but for their relics, who would have dreamed of their having lived and moved where the hand of nature has strewn their sepulchres? Their relics are medals of time gone by! They speak, how impressively, of the changing dynasties of organic being on the ever-altering surface of our planet! It is not then from the equine race, companions of the mighty extinct, that we deduce the horse of the Pampas; on the contrary, the horse of America is a modern importation, and in this instance may we not say that man has unwittingly replenished a void which in ages past Nature herself had effected? The agency of man on the lower animals is seldom considered: his direct agency indeed is palpable enough, but his indirect agency, though not so prominent in bold relief, is far more extensive. He transports the plants of Europe and the animals of Europe to islands in the Pacific, to Australia, to South America; he imports the plants and animals of far distant realms into the various

countries of Europe. But this is not all: with these plants are brought, or sent, the eggs of the insects dependent upon them for nourishment; and of these insects how many have proved the bane of the country which has received them! On quadrupeds again depend plants and insects; on plants in turn quadrupeds; on insects, on quadrupeds, and on plants, birds; and thus is a reaction ever going on, man being, so to speak, the great disturber of the polity of creation.

To man, and that within modern times, the introduction of the horse into America is due. Herds of wild horses revel in the vast plains of that new world; but these horses, wild as they are, differ from the tarpans of Mongolia both in temper and habits. They have not lost the impress of domestication transmitted from their Spanish progenitors; and the spur and bridle of the Gaucho will subdue the boldest in a day.

Whether the Norwegian discoverers of Newfoundland and various parts of North America during the tenth and eleventh centuries, and who attempted settlements on various parts of the coast of North America, left horses behind them or not, we have no means of ascertaining. Most probably not; and if so, we are to look to a still nearer date for the introduction of the horse. In South America, confessedly, it is not until the time of Cortez and Pizarro that the horse gained a fair footing in the new world. Cortez carried the horse to Mexico, Pizarro to Peru. Brazil derived the horse from the Portuguese. Previously, however, Columbus (A.D. 1494) introduced the horse into Hayti: it was in 1494 that he returned from Spain to Hayti (whence he had previously departed, leaving a garrison behind him) with horses and ferocious dogs. As this was the first time that horses had appeared in the new world, they were objects no less of terror than of admiration to the Indians; who regarded them as rational creatures, and imagined that the horse and rider formed one animal, the speed of which astonished them, and the impetuosity and strength of which they considered irresistible.

Within a century afterwards Hayti, and we believe

Cuba, which Columbus discovered in 1492, abounded with horses. In 1519 the brutal Cortez left Cuba with troops and sixteen horses to make war on the unoffending natives of New Spain. The terror of firearms and the dreadful appearance of the horses humbled the spirits of the natives at every place he touched at. The Mexicans gazed with awe on those strange animals: at first they imagined horse and rider, like the centaurs of the ancients, to be some monstrous creature of terrible form; and supposing that their food was the same as that of men, brought flesh and bread to nourish them. Even after they discovered their mistake, they believed the horses devoured men in battle, and when they neighed thought that they demanded their prey. It was not the interest of the Spaniards to undeceive them. (Herrera.)

In 1530 Pizarro entered Peru, as an adventurer, with a small body of troops and about sixty-two horsemen. The Inca, Atahualpa, advanced in state to meet the treacherous invader, who had established himself at Caxamala in a court, on one side of which was a palace, on the other a temple of the sun. As the Inca drew near the Spanish quarters, Father Vincent Valverde advanced with a crucifix and breviary, and made a long oration on the new religion he came to teach. Little understanding the discourse, badly translated by an interpreter, the Inca inquired where such things were to be learned. Valverde gave him the breviary: the monarch, ignorant of letters, held it to his ear, and said, "This tells me nothing," and immediately threw it to the ground. The enraged priest cried, "To arms! avenge this profanation on these impious dogs!" The sudden attack, the roar of musketry, the irresistible rush of the cavalry, struck the natives with panic: the slaughter was continued till the close of day; the Inca was taken. History paints the rest in colours of blood. Such were the occurrences which took place on the introduction of the horse, by demons in human form, into the Peruvian empire. In the course of a short time Chili, the provinces of Tucuman and Rio de la Plata,

including Paraguay and the country extending southwards to Patagonia, became annexed to Spain. In the rich pasture-grounds of these vast territories, horses and cattle rapidly multiplied, and spread far and wide, in troops or herds, living a life of freedom.

Brazil was discovered in 1500 by Pedro Alvares de Cabral, who was sent by the King of Portugal to the East Indies with a large navy. Having visited the coast and taken possession in the king's name, he continued his voyage to the East Indies, transmitting, however, an account of his discovery to Lisbon. Upon the receipt of this despatch, the King of Portugal sent out the Florentine, Amerigo Vespucci, to survey the country; but his report was not very favourable. Subsequently King John III. encouraged the emigration of a few wealthy families, granting them vast extents of land; and during the interval between the years 1531 and 1545 the towns of St. Vincent, Espirito Santo, Porto Seguro, and Pernambuco were founded. In 1549 a governor was sent from Lisbon, the town of Bahia founded (in the bay of Todos os Santos), and a regular colonial ministration established. By the Portuguese settlers, previous to and about the year 1531, the horse was introduced into Brazil, and now abounds in several of the provinces, roaming in a state of liberty.

Such is a brief account of the early introduction by the Spaniards and Portuguese of the horse into Mexico and South America. Who would have predicted the results, even as respects the distribution of animal life, consequent upon the hazardous voyage of Columbus in the year 1492?

The habits and manners of the wild horses of South America have been described by various travellers, from Azara to Mr. Darwin, and that with such graphic truth as completely to familiarise us with them. They exist in great abundance in the Pampas, between the Rio de la Plata and the southern parts of Patagonia; vast herds are spread through different parts of Brazil, and they also occur on the borders of the Orinoco. In some regions, as the Pampas of Buenos Ayres, their numbers

are almost incredible; they associate in troops of thousands, and scour the plains in the exuberance of their vigour. Their colour is principally bay. In North America, around the Gulf of Mexico, and in the open districts of California, herds of feral horses still occur, and were formerly abundant in the Floridas. In the extensive prairies that lie to the west of the Mississippi they were met with by Dr. Richardson, who regarded them as having migrated from Mexico. They do not, it appears, extend beyond 53° N. latitude. They herd in considerable numbers on the plains of the Columbia river: among these, black horses are not uncommon.

The Hon. C. A. Murray, in his 'Travels in North America,' has given an animated picture of the rush of a troop of these animals, consisting of several thousands, across a wide extent of plain. This rush, or impetuous passage of wild horses, caused by some alarm which strikes a general panic, is called a *stampedo*. "About an hour," he says, "after the usual time to secure the horses for the night, an indistinct sound arose like the muttering of distant thunder; as it approached it became mixed with the howling of all the dogs in the encampment, and with the shouts and yells of the Indians; in coming nearer, it rose high above all these accompaniments, and resembled the lashing of a heavy surf upon a beach. On and on it rolled towards us, and, partly from my own hearing, partly from the hurried words and actions of the tenants of our lodge, I gathered it must be the fierce and uncontrollable gallop of thousands of panic-stricken horses. As this living torrent drew nigh, I sprang to the front of the tent, seized my favourite riding-mare, and, in addition to the hobbles which confined her, twisted the long *lariett* round her fore-legs; then led her immediately in front of the fire, hoping that the excited and maddened flood of horses would divide and pass on each side of it. As the galloping mass drew nigh our horses began to snort, prick up their ears, and then to tremble; and when it burst upon us they became completely ungovernable from terror; all broke loose,

and joined their affrighted companions, except my mare, which struggled with the fury of a wild beast; and I only retained her by using all my strength, and at last throwing her on her side. On went the maddened troop, trampling, in their headlong speed, over skins, dried meat, &c., and throwing down some of the smaller tents. They were soon lost in the darkness of the night and in the wilds of the prairie, and nothing more was heard of them save the distant yelping of the curs who continued their ineffectual pursuit."

From Kennedy's 'Texas' we take the following animated picture of the wild horse, drawn from a fine individual which he met with on one of his excursions:—"We rode through beds of sun-flowers, miles in extent, their dark seedy centres and radiating yellow leaves following the sun through the day from east to west, and drooping when the shadows fell over them. These were sometimes beautifully varied with a delicate flower, of an azure tint, yielding no perfume, but forming a pleasant contrast to the bright yellow of the sun-flower. About half-past ten we discerned a creature in motion at an immense distance, and instantly started in pursuit. Fifteen minutes' riding brought us near enough to discover, by its fleetness, that it could not be a buffalo, yet it was too large for an antelope or a deer. On we went, and soon distinguished the erect head, the flowing mane, and the beautiful proportions of the wild horse of the prairie. He saw us, and sped away with an arrowy fleetness till he gained a distant eminence, when he turned to gaze at us, and suffered us to approach within four hundred yards, when he bounded away again in another direction, with a graceful velocity delightful to behold. We paused—for to pursue him with a view to capture was clearly out of the question. When he discovered we were not following him, he also paused, and now seemed to be inspired with curiosity equal to our own; for, after making a slight turn, he came nearer, until we could distinguish the inquiring expression of his clear, bright eye, and the quick curl of his inflated nostrils. We had no hopes of catching, and did not

wish to kill him, but our curiosity led us to approach him slowly. We had not advanced far before he moved away, and, circling round, approached on the other side. It was a beautiful animal—a sorrel, with jet black mane and tail. As he moved we could see the muscles quiver in his glossy limbs; and when, half playfully, and half in fright, he tossed his flowing mane in the air, and flourished his long silky tail, our admiration knew no bounds, and we longed—hopelessly, vexatiously longed—to possess him. We might have shot him where we stood; but, had we been starving, we could scarcely have done it. He was free, and we loved him for the very possession of that liberty we longed to take from him; but we would not kill him. We fired a rifle over his head; he heard the shot, and the whiz of the ball, and away he went, disappearing in the next hollow, showing himself again as he crossed the distant ridges, still seeming smaller, until he faded away to a speck on the far horizon's verge."

With respect to the wild or feral horses in South America, it must not be supposed that they are destitute of owners. On the contrary, like the furred or feathered game in our country, which, though feræ naturæ, is accounted the property of those on whose estates it is found, so the wild horses in South America belong to those proprietors on whose estancias they feed. The estancias are wide districts, or feeding grounds,* the

* General San Rosas "is said to be the owner of 74 square leagues of land, and to have about 300,000 head of cattle. His estates are admirably managed, and are far more productive of corn than many others."—*Darwin.* "Rode out with my host to his estancia, at the Arrayo de San Juan. In the evening we took a ride round the estate: it contained two square leagues and a half, and was situated in what is called a rincon; that is, one side was fronted by the Plata, and the two others guarded by impassable brooks. There was an excellent port for little vessels, and an abundance of small wood, which is valuable as supplying fuel to Buenos Ayres. I was curious to know the value of so complete an estancia. Of cattle there were 3000, and it could well support three or four times that number; of mares 800, together with 150 broken horses and

estates of different landholders, and appropriated to the feeding of thousands of wild cattle and horses. In these animals their property consists, and stock-keepers are appointed to take charge of the animals; they are stationed at certain points to prevent the herds from straying beyond certain bounds, and to recover them if they wander. Horses are a valuable property; for although their individual price is trifling, yet from the numbers possessed, and the little outlay they require, the amount of profit derivable from them is considerable. Baron Humboldt states that near the Orinoco a thousand horses sell for two thousand two hundred piastres. What the exact value of the piastre in South America may be, we are not able to learn very satisfactorily; however, the sum per horse is at most but a few shillings. It appears that in South America the mares are never backed; they are, however, very commonly killed for food; for the Indians, or half-bred natives, like the Tartar tribes of Asia and Eastern Europe, make use of the flesh of this animal; and this appears to be universally the case where the horse roams in a state of freedom.* The

600 sheep: there was plenty of water and limestone, and a rough house; excellent corrals (slaughtering enclosures), and a peach orchard. For all this he had been offered 2000*l.*, and only wanted 500*l.* additional, and probably would sell it for less. The chief trouble with an estancia is driving the cattle twice a week to a central spot, in order to make them tame and count them. This latter operation would be thought difficult, where there are ten or fifteen thousand head together; it is managed on the principle that the cattle invariably divide themselves into little troops of from forty to one hundred. Each troop is recognised by a few peculiarly marked animals, and its number is known, so that one being lost out of ten thousand, it is perceived by its absence from one of the tropillas (little troops). During a stormy night the cattle all mingle together, but the next morning the tropillas separate as before." —*Darwin.* This extract will give a clear idea of the nature of an estancia.

* Mare's flesh in South America is the only food which the soldiers have on their expeditions. Mr. Darwin mentions that he was delayed crossing the Rio Colorado by some immense

hides of these animals, equally with those of the feral oxen, are articles of commerce, and are largely imported into this country, and afterwards tanned for the manufacture of shoes. Formerly the best leather for this purpose, called cordovan, was wholly derived from Spain; but time has made a great difference in this as well as in most other imports connected with trade; and South American leather is nearly as good as the Spanish, and can be obtained cheaper, and in larger quantities. That made from the skin of the English blood-horse is of very superior quality, but is obtained very sparingly; for we need not say that blood-horses are not purposely killed for the sake of the hides; but in South America, on the contrary, thousands are slaughtered annually, having been bred and reared for no other object; and it is thus that they constitute a portion of the profitable stock of an estancia. The hides of horses which die from disease or age are of little value. We understand that curriers divide the leather of the horse into three qualities: that from the shoulders and part of the neck is by far the best, being firm, compact, and smooth; it is the substitute for the real Spanish cordovan, and is used for the shoes of ladies and children. The portion of skin, technically called the *butts*, taken from the sides and back, is next in quality, but much thicker, and is used for the backs of boots; whilst that of the belly being very inferior,

troops of mares, which were swimming the river, in order to follow a division of the troops of General Rosas into the interior. The spectacle was very singular: as the military thus drive their sustenance along with them, they have little to retard the rapidity of their movements,—and the distance to which the animals can be urged over the Pampas is extraordinary; they have, it is asserted, been known to travel a hundred miles a day for many days successively. In North America some of the Indian tribes on the plains of the Saskatchewan and Missouri are fond of horseflesh, and Dr. Richardson says that the residents at some of the Hudson's Bay Company's posts, on the river Columbia, are under the necessity of making it their principal article of diet.

weak, and liable to stretch, is put aside for the cheapest articles. In South America the persons employed in killing and skinning the mares are many of them singularly expert, and of their dexterity surprising instances are on record. Mr. Darwin ('Journal, &c.') says, "At an estancia near Las Vacas large numbers of mares are weekly slaughtered for the sake of their hides, although worth only five paper dollars, or about half-a-crown a-piece. It seems at first strange that it can answer to kill mares for such a trifle; but as it is thought ridiculous in this country ever to break in or ride a mare, they are of no value except for breeding. The only thing for which I ever saw mares used was to tread out wheat from the ear, for which purpose they were driven round a circular enclosure where the wheat-sheaves were strewed. The man employed for slaughtering the mares happened to be celebrated for his dexterity with the lazo. Standing at a distance of twelve yards from the mouth of the corral, he has laid a wager that he would catch by the legs every animal without missing one as it rushed past him. There was another man who said he would enter the corral on foot, catch a mare, fasten her front legs together, drive her out, throw her down, kill, skin, and stake the hide for drying (which latter is a tedious job); and he engaged that he would perform this whole operation on twenty-two animals in one day; or he would kill and take the skin off fifty in one day. This would have been a prodigious task; for it is considered a good day's work to skin and stake the hides of fifteen or sixteen animals."

The wild horses of the Pampas, when required for the saddle, are caught by means of the noose or lazo, in the use of which the Gauchos are wonderfully expert, beginning the practice of it in early childhood. They mostly select from a number of horses driven into a corral, those they deem the most suitable; but sometimes they single one from a herd at liberty, and pursue it over the plains until they are near enough to use the lazo, which they throw with unerring precision. The lazo is a plaited thong of equal thickness, half an inch in dia-

meter, and forty feet long, composed of several strips of hide intertwisted and rendered supple by grease, and properly cured. At one end is an iron ring about an inch and a half in diameter, through which the thong is passed so as to make a running noose. The Gaucho is generally mounted on horseback when he uses the lazo; one end of the thong is affixed to the saddle, the remainder he coils carefully in his left hand, leaving about twelve feet belonging to the noose end in a coil; half of this he holds in his right hand, swinging the noose horizontally round his head, the weight of the iron ring assisting in giving it sufficient impetus, when launched, to carry out the whole length of the line.* This simple instrument in the hands of the Gaucho is very formidable, and as his horse is trained to resist the strain, he is capable of checking instantaneously a wild bull in the midst of his career.

The process of subduing a wild horse by the Gauchos has been described by Head, Hall, and other travellers, but by none with such force and clearness as by Mr. Darwin.

"One evening," says the latter writer, "a domidor or subduer of wild horses came for the purpose of breaking in some colts. I will describe the preparatory steps, for I believe they have not been mentioned by other travellers. A troop of young wild horses is driven into the corral or large enclosure of stakes, and the door is shut. We will suppose that one man alone has to catch and mount a horse, which as yet had never bridle or saddle. I conceive, except by a Gaucho, such a feat would be utterly impracticable. The Gaucho picks out a full-grown colt, and as the beast rushes round the circus, he throws his lazo so as to catch both the front legs. Instantly the horse rolls over with a heavy shock, and

* The lazo or lasso is not a modern instrument; as figures abundantly attest it was known to and used by the ancient Egyptians: they are always represented as using it on foot, and most likely the huntsman lay in ambush and threw it as the game, viz., antelope or wild ox, passed by.

whilst struggling on the ground, the Gaucho, holding the lazo tight, makes a circle so as to catch one of the hind legs just beneath the fetlock, and draws it close to the two front. He then hitches the lazo so that the three legs are bound together; then sitting on the horse's neck, he fixes a strong bridle without a bit to the lower jaw; this he does by passing a narrow thong through the eye-holes at the end of the reins, and several times round both jaw and tongue; the two front legs are now tied closely together with a strong leathern thong, fastened by a slip-knot. The lazo which bound the three together being then loosened, the horse rises with difficulty; the Gaucho now holding fast the bridle fixed to the lower jaw, leads the horse outside the corral. If a second man is present (otherwise the trouble is much greater) he holds the animal's head while the first puts on the horse-cloths and saddle, and girths the whole together. During this operation the horse, from dread and astonishment at being thus bound round the waist, throws himself over and over again on the ground, and till beaten is unwilling to rise. At last, when the saddling is finished, the poor animal can hardly breathe from fear, and is white with foam and sweat. The man now prepares to mount by pressing heavily on the stirrup, so that the horse may not lose its balance; and at the moment he throws his leg over the animal's back he pulls the slip-knot and the beast is free. Some domidors pull the knot while the animal is lying on the ground, and standing over the saddle allow it to rise beneath them; the horse, wild with dread, gives a few most violent bounds, and then starts off at full gallop: when quite exhausted, the man, by patience, brings him back to the corral, where, reeking hot and scarcely alive, the poor beast is set free. Those animals which will not gallop away, but obstinately throw themselves on the ground, are by far the most troublesome: this process is tremendously severe, but in two or three trials the horse is tamed. It is not, however, for some weeks before the animal is ridden with the iron bit and solid ring, for it must learn to associate the will of its rider with the feel

of the rein before the most powerful bridle can be of any service.

"The Gauchos are well known to be perfect riders; the idea of being thrown, let the horse do what it likes, never enters their head: their criterion of a good rider is a man who can manage an untamed colt, or who, if his horse falls, alights on his own feet, or can perform other such exploits. I have heard of a man betting that he would throw his horse down twenty times, and that nineteen out of these he would not fall himself. I recollect seeing a Gaucho riding a very stubborn horse which three times reared so excessively high as to fall backwards with great violence. The man judged with uncommon coolness the proper moment for slipping off, not an instant before or after the right time. Directly the horse rose the man jumped on his back, and at last they started at a gallop. The Gaucho never appears to exert any muscular force. I was one day watching a good rider, as we were galloping along at a rapid pace, and thought to myself surely if the horse starts, you appear so careless on your seat, you must fall. At this moment a male ostrich sprang from its nest right beneath the horse's nose. The young colt bounded on one side like a stag; but as for the man, all that could be said was, that he started and took fright as part of his horse.

"In Chile and Peru more pains are taken with the mouth of the horse than in La Plata, and this is evidently in consequence of the more intricate nature of the country. In Chile a horse is not considered perfectly broken till he can be brought up standing in the midst of his full speed on any particular spot; for instance, on a cloak thrown on the ground; or again, will charge a wall, and rearing, scrape the surface with his hoofs. I have seen an animal bounding with spirit, yet merely reined by a fore-finger and thumb, taken at full gallop across a court-yard, and then made to wheel round the post of a verandah with great speed, but at so equal a distance that the rider with outstretched arm all the while kept one finger rubbing the post; then

making a demivolte in the air, with the other arm outstretched in a like manner, he wheeled round with astonishing force in an opposite direction.

"Such a horse is well broken, and though this at first may appear useless, it is far otherwise: it is only carrying that which is daily necessary into perfection. When a bullock is checked and caught by the lazo, it will sometimes gallop round and round in a circle, and the horse being alarmed at the great strain, if not well broken, will not readily turn like the pivot of a wheel. In consequence, many men have been killed; for if the lazo once makes a twist round a man's body, it will instantly, from the power of the two opposed animals, almost cut him in twain. On the same principle the races are managed: the course is only two or three hundred yards long, the desideratum being to have horses that can make a rapid dash. The race-horses are trained not only to stand with their hoofs touching a line, but to draw all four feet together, so as at the first spring to bring into play the full action of the hind quarters. In Chile I was told an anecdote which I believe was true, and it offers a good illustration of the use of a well-broken animal. A respectable man riding one day met two others, one of whom was mounted on a horse which he knew to have been stolen from himself. He challenged them; they answered by drawing their sabres and giving chase. The man on his good and fleet beast kept just ahead; as he passed a thick bush he wheeled round it and brought up his horse to a dead check. The pursuers were obliged to shoot on one side and ahead. Then instantly dashing on right behind them, he buried his knife in the back of one, wounded the other, recovered his horse from the dying robber, and rode home. For these feats in horsemanship two things are necessary; a most severe bit, like the Mameluke, the power of which, though seldom used, the horse knows full well; and large blunt spurs, that can be applied either as a mere touch or as an instrument of extreme pain. I conceive that with English spurs, the slightest touch of which pricks the skin, it would be im-

possible to break a horse after the South American fashion."

Captain Basil Hall gives a very similar account of the mode in which horses are captured while rushing with a herd over the Pampas. The mounted Gaucho gives chase, and marking his animal, throws the lazo round its two hind legs, and riding to one side, with a jerk throws the entangled horse prostrate on its side, without endangering the knees or face. Before the horse can recover the shock the Gaucho dismounts, and snatching his poncho or cloak from his shoulders, wraps it round the prostrate animal's head. He then forces into the mouth one of the powerful bridles of the country, straps a saddle on his back, and bestriding him removes the poncho, upon which the astonished horse springs on his legs and endeavours by a thousand vain efforts to disencumber himself of his new master, who sits quite composedly on his back, and by a discipline which never fails, reduces the horse to such complete obedience that he is soon trained to lend his whole strength and speed to the capture of his companions.

Occasionally the bolas (or balls attached to thongs) are used in catching wild horses.* Robertson in his

* Azara thus describes the bolas or balls used in his time by the Pampas Indians on the banks of the Plata:—"These balls are of two kinds. The first is composed of three round stones about the size of the fist, covered with strong leather, and attached to a common centre by strong leathern cords three feet long. They take the smallest of the three in their hands, and after whirling the others violently round their head, throw the whole to the distance of about 100 feet, when they so maim and entwine themselves around the limbs of any living creature, that it is impossible to escape from them. The other kind is a single ball of the same size, except when it is made of iron or copper, it being then smaller. It too is covered with leather, and has a leathern thong attached by which they twirl it round, and at the hard gallop can project it with frightful force to the distance of 500 feet. When first attacked, it was with this weapon they killed the brother of the founder of Buenos Ayres, nine of the first captains which were on horseback, and a great number of Spanish soldiers. By attaching combustibles,

'History of Paraguay' gives us the following animated picture:—"We now came (while chasing the rhea or American ostrich) upon an immense herd of wild horses, and Candioti, jun., said, 'Now, Señor Don Juan, I must show you how we tame a colt.' So saying, the word was given for the pursuit of the herd, and off, once more, like lightning, started the Gaucho horsemen, Candioti and myself keeping up with them. The herd consisted of about two thousand horses, neighing and snorting, with ears erect and flowing tails, their manes outspread to the wind, affrighted the moment they were conscious of pursuit. The Gauchos set up their usual cry; the dogs were left in the distance, and it was not till we had followed the flock at full speed, and without a check, for five miles, that the two headmost peons launched their bolas at the horse which each had respectively singled out of the herd. Down to the ground, with frightful somersets, came two gallant colts. The herd continued its headlong flight, leaving behind their two prostrate companions. Upon these the whole band of Gauchos now ran in; lazos were applied to tie their legs; one man held down the head of each horse, and another the hind quarters, while with singular rapidity and dexterity two other Gauchos put the saddles and bridles on their fallen, trembling, and nearly frantic victims. This done, the two men who had brought down the colts bestrode them as they still lay on the ground. In a moment the lazos which bound their legs were loosed, and at the same time a shout from the field so frightened the potros, that up they started on all-fours, but, to their astonishment, each with a rider on his back, riveted, as it were, to the saddle, and controlling them by means of a never-before-dreamed-of bit in his mouth. The animals made a simultaneous and most surprising vault; they reared, plunged, and kicked; now they started off at full gallop, and anon stopped short in their career, with their heads between their legs, endeavouring to throw their riders. 'Que

they often set fire to the settlements of their invaders, and even to their ships."

esperanza!' 'vain hope, indeed!' Immoveable sat the two Tape Indians: they smiled at the unavailing efforts of the turbulent and outrageous animals to unseat them; and in less than an hour from the time of their mounting, it was very evident who were to be the masters. The horses did their very worst, the Indians never lost either the security or the grace of their seats; till, after two hours of the most violent efforts to rid themselves of their burden, the horses were so exhausted, that, drenched in sweat, with gored and palpitating sides, and hanging down their heads, they stood for five minutes together, panting and confounded, but they made not a single effort to move. Then came the Gaucho's turn to exercise his more positive authority. Hitherto he had been entirely upon the defensive. His object was simply to keep his seat and tire out his horse. He now wanted to move it in a given direction; wayward, zigzag, often interrupted was his course at first, still the Gaucho made for a given point; and they advanced towards it, till at the end of about three hours the now mastered animals moved in nearly a direct line, and, in company with the other horses, to the questo, or small subordinate establishment on the estate to which we were repairing. When we got there, the two horses, which so shortly before had been free as the wind, they tied to a stake of the corral, the slaves of lordly man, and all hope of emancipation was at an end."

From these accounts of the wild horse of the American continent, it is evident that however spirited and violent it may be when just captured, and under the discipline of the Gaucho, it is not thoroughly *feræ naturæ*—those impressions which a long course of domestication has implanted in the feelings and disposition of the domestic horse, and which render the as yet unbacked colt easily broken in, are evidently not eradicated, though, perhaps, weakened in the free horse of the Pampas. These impressions have been transmitted from its ancestors, and hence, with discipline, it becomes as tractable and as obedient as if it had never roamed in a state

of liberty. Such, however, as we have shown, is not the case with the true wild horse of the Mongolian deserts; the rude decisive way pursued by the Gaucho would drive the tarpan of the desert to frenzy, but would succeed with the muzin, as with the feral horse of America. Moreover, it does not appear that these horses of the Pampas and prairies are divided into troops, each under the conduct of a mighty sultan-stallion; nor are they migratory in the true sense of the word. Yet the American feral horses are noble animals, and Mr. Darwin describes several scenes in which they figure to great advantage. One or two extracts from his valuable work may prove not unacceptable. Speaking of the great corral at Buenos Ayres, where numbers of cattle are kept for slaughter to supply food for the people, whom he justly terms a beef-eating population, he observes that "the strength of the horse as compared to that of the bullock is quite astonishing—a man on horseback having thrown his lazo round the horns of a beast can drag it anywhere he chooses. The animal having ploughed up the ground with outstretched legs in vain efforts to resist the force, generally dashes at full speed to one side; but the horse immediately turning to receive the shock, stands so firmly that the bullock is almost thrown down, and one would think would certainly have its neck dislocated. The struggle, however, is not one of fair strength, the horse's girth being matched against the bullock's extended neck. In a similar manner a man can hold the wildest horse, if caught with the lazo just behind the ears. When the bullock has been dragged to the spot where it is to be slaughtered, the matador with great caution cuts the hamstrings. Then is given the death-blow—a noise more expressive of fierce agony than any I know. I have often distinguished it from a long distance, and have always known that the struggle was then drawing to a close. The whole sight is horrible and revolting—the ground is almost made of bones, and the horses and riders are drenched with gore." We have never witnessed such contests, but we have been frequently struck with the

disparity between the strength of the horse and bullock in our own country. We have seen oxen employed both in the plough and in drawing carts, but never without feeling that the force of these animals, thus exerted, was inferior to that displayed by a horse of the same bulk or weight. A cart-horse of moderate powers will draw a load of bricks or granite, in a heavy cart, which no ox could even move. Look again at the omnibuses drawn by two horses, say from Brentford to St. Paul's. The weight of the vehicle is from twelve to fourteen hundred weight; within, are twelve or thirteen persons; outside, four or five more; yet this carriage thus loaded, two horses will draw at a good pace, making two journeys during the day, that is about twenty miles. What pair of bullocks, heavy and huge as they may be, could effect such a task? It would appear, however, that at a dead pull the buffalo of Italy is superior even to the horse, and, moving in its usual slow manner, will drag heavy carriages through sloughs and marshy grounds which the horse would fail in his most strenuous efforts to accomplish. To return to Mr. Darwin's pictures of the reclaimed feral horse of America.

The Indians of the Pampas, whose forefathers knew not the horse, the introduction of which has greatly altered their habits, are expert and daring riders; in the capture of game, as rheas, or American ostriches, and even in the taking of cattle, they use the bolas, as do also the Gauchos, particularly in some districts towards the north of Patagonia. It is not only for their skill in the use of these missiles, but for their love of the horse, that the Indians of the Rio Colorado are remarkable. "The bolas," says Mr. Darwin, "is a very important weapon to the Indian, for with it he catches his game, and also his horse, which roams free over the plain. In fighting, his first attempt is to throw the horse of his adversary with the bolas, and when entangled with the fall, to kill him with the chuzo (lance). If the balls only catch the neck or body of the animal, they are often carried away and lost. "Their chief pride consists in having everything made of silver. I

have seen a cacique with his spurs, stirrups, handle of his knife, and bridle made of this metal. The headstall and reins being of wire, were not thicker than whipcord; and to see a fiery steed wheeling about under the command of so light a chain, gave to the horsemanship a remarkable character of elegance."

The next picture gives us a vivid idea of the horsemanship of the Indians. A bloody and brutal warfare is, or was lately, carried on by General Rosas against the Indians—a war of extermination, with all its attendant barbarities. At Cholechel, Bahia-Blanca, General Rosas' banditti-like troops encountered a tribe of Indians, of whom they killed twenty or thirty. "The cacique escaped in a manner which surprised every one: the chief Indians have always one or two picked horses, which they keep ready for any urgent occasion. On one of these, an old white horse, the cacique sprung, taking with him his little son: the horse had neither saddle nor bridle. To avoid the shots the Indian rode in the peculiar method of his nation, namely, with an arm round the horse's neck and one leg only on its back. Thus hanging on one side he was seen patting the horse's head, and talking to him. The pursuers urged every effort in the chase; the commandant three times changed his horse, but all in vain: the old Indian father and his son escaped and were free. What a fine picture one can form in one's mind; the naked bronze-like figure of the old man with his little boy, riding like a Mazeppa on the white horse, thus leaving far behind him the host of his pursuers!" Exclusive of the interest attached to these narratives, independently considered, they demonstrate to us the effects of the agency of the lower animals on man. Man indeed plays the part of dictator and disturber, with respect to the lower race around him, and yet these in their turn influence his habits, his views, and his social condition. Time out of mind the nomadic hordes of the Asiatic deserts have been horsemen; but in America, where the horse was unknown till introduced by the Spanish tyrants, a few years only, comparatively speaking, have sufficed to convert the

Indian of the Pampas and prairies into an equestrian of the most accomplished skill. The man whose forefathers trembled and fled at the sight of the Spanish war-horse dashing along in irresistible strength, throws himself on his own favourite steed, and clinging with inimitable address, laughs his pursuers to scorn. Thus it is that the animal and vegetable kingdoms act on the human race, while man in his turn, the great agitator in the polity of organic life, transfers animals essential to his welfare from climate to climate, till at last their very birthplace and aboriginal cradle become matters of speculation.

We have already alluded to the alternations of drought and flood to which the horses of South America are exposed, causing the destruction of vast numbers. Baron Humboldt, in his personal narrative, describes the periodical swellings of the Apure, Meta, and Orinoco, and states that in the rainy season the horses that wander in the savannah, and have not time to reach the rising grounds of the Llanos or Pampas, perish by hundreds. The mares are seen followed by their colts, swimming during a part of the day to feed upon the grass, the tops of which alone wave above the waters. In this state they are pursued by alligators, and the teeth-marks of these aquatic monsters are frequently found on their thighs. Everywhere the colts are drowned in great numbers, for they are sooner tired with swimming than the mares, which nevertheless they persevere in following till utterly exhausted. On the contrary, there occur periods of excessive drought; the streams and marshes are dry, the mud is baked into a hardened mass, vegetation perishes, and the wide-stretched plain reflects the insufferable heat of the glowing sun: the herds then become frantic with thirst, and rush across the plain, maddened to fury, in search of water; some die exhausted; others attain the brink of a wide river, conducted either by chance, or their sense of smell. Into the waters they rush with infuriate violence, mangling and trampling upon one another, some sinking into the mud, to be crushed by their companions; others

are forced powerless into the current, which hurries their carcasses onwards, and either carries them out to sea, or to some large tranquil sheet of water, or pool, where they decompose, the bones collecting in thousands on the muddy bed. It is thus that the increase of the horse on the vast plains of South America is checked, for there are no large feline animals, excepting the jaguar and puma, to thin their numbers, and from these they seem to experience little if any molestation.

In the Falkland Islands, off the coast of Patagonia, there are herds of wild cattle, feral horses, and wild rabbits, all introduced from Europe. The cattle are very fine; but Mr. Darwin observes that, from the greater number of cows which have been killed, there is a large proportion of bulls. "These wander about by twos and threes, or by themselves, and are very savage. I never saw such magnificent beasts; they truly resembled the ancient sculptures, in which the size of the neck and head is but seldom equalled among tame animals. The young bulls ran away for a short distance, but the old ones did not stir a step, except to rush at man and horse, and many of the latter have thus been killed."

The wild horses go in troops. "These animals," says the same traveller, "as well as the cattle, were introduced by the French in 1764, since which time they have greatly increased. It is a curious fact that the horses have never left the eastern side of the island, although there is no natural boundary to prevent them roaming, and that part of the island is not more tempting than the rest. The Gauchos, though asserting this to be the case, are unable to account for the circumstance. The horses appear to thrive well, yet they are small-sized, and have lost so much strength that they are unfit to be used in taking wild cattle with the lazo; in consequence it is necessary to go to the expense of importing fresh horses from the Plata. At some future period the southern hemisphere probably will have its breed of Falkland ponies as the northern has that of Shetland." The Falkland Islands have a desolate wretched aspect; the soil is peaty, the grass wiry; there is little sunshine,

and much storm and rain; the climate is consequently very humid, and it is only occasionally that wheat will ripen. We wonder that in such a country the horse thrives at all, and still more so that the cattle should be fine.

We may here observe that there is one purpose to which the horse is applied in South America which shows how circumstances determine the use made of the animals which we have subjugated. We allude to the capture of the great electrical eel, which swarms in many of the stagnant pools and slowly moving waters in the Savannahs or Llanos of South America. This eel (*gymnotus electricus*) inflicts the most violent shocks, attended with great agony, upon all living creatures which come near it, and instantly kills those of smaller size. The plan is to drive a number of horses into the water, on which the eels discharge repeated electric shocks, till they are themselves exhausted—a cruel process, and not unattended by the death of sometimes one or two, and sometimes even several of the horses, which sink paralyzed and are drowned. This strange mode of fishing is called *embarbascar con caballos*, that is, to make drunk by means of horses. We are told that the word *barbasco* signifies the root of poisonous plants, as the jaquinia and piscidia, which, when thrown into the water, stupifies the fishes within its influence, causing them to float in a senseless condition. This effect the horses produce on the exhausted eels, and hence arises the application of the term *embarbascar* to this operation.

"While our host," says Baron Humboldt, "was explaining this extraordinary mode of fishing in this part of the country, the troop of horses and mules arrived. The Indians had made a sort of battue in collecting them, and, surrounding them on all sides, forced them to enter the pool. Imperfectly can I describe the interesting spectacle which the battle of the eels and the horses presented. The Indians, furnished with long canes and harpoons, placed themselves round the pool; some mounted the trees, the branches of which stretched over the surface of the water; and all by their long

canes and by uttering loud cries, prevented the horses from gaining the bank. The eels, terrified by the noise of the horses, defended themselves by the reiterated discharge of their electric batteries, and for a long time had every appearance of gaining a complete victory. In every direction were seen horses or mules which, stunned by the force and repetition of the electric shocks, disappeared beneath the water; some of the horses floundered up, and in spite of the vigilance and activity of the Indians, gained the bank, and then, exhausted with fatigue and with their limbs benumbed through the violence of the shocks, they stretched themselves at full length on the ground.

"I could have wished that a skilful painter had been present to depict this scene when at the highest point of the exciting commotion;—there, groups of Indians surrounding the pool;—there, the horses, with bristling manes, and eyes gleaming with terror and pain, struggling to escape the storm which had overtaken them;—there, yellow and livid eels swimming like great aquatic serpents on the surface of the water, and pursuing their enemies—all these combined objects would no doubt compose a most picturesque assemblage. I remember a fine painting representing a horse entering a cave, and starting back in affright at the sight of a lion; such was the expression of terror which we saw in these horses during this unequal combat. In less than five minutes two horses were drowned. The eel, which is more than five feet long, glides under the belly of the horse or mule, and there makes a discharge of electricity from the whole of the apparatus, benumbing at the same time the heart, the viscera, and the great plexus of gastric nerves. It is not then surprising that the effect which the fish produces on a large quadruped surpasses that which a man touching it only with his limbs experiences; but it is not clear the horse is killed immediately; it is most probably only stunned by the shocks, and falls powerless and lethargic. Thus in a state of insensibility the animal disappears beneath the water; other horses and mules pass over its body, and in a few minutes it perishes.

"After this début I feared the chase would have a tragic close, and doubted not to see the greater number of mules one by one sink and die; but the Indians assured us the fishing would soon terminate, and that it was only the first assault of the eels that was formidable. In fact, whether the electro-galvanic principle accumulates by repose, or whether the electric organ ceases to perform its functions when exhausted by too long an action, it is certain that after some time the eels may be compared to discharged electric batteries; their muscular movements are, indeed, still vigorous; but they are incapable of inflicting strong electric shocks.

"When the combat had lasted a quarter of an hour, the mules and the horses appeared to be less terrified; they no longer bristled up their manes, and the eye expressed less pain and affright. They were no longer seen to fall, and the eels, swimming half out of the water, and avoiding the horses instead of attacking them, made for the bank. The Indians assured us that when, for two successive days, horses are forced into a pool full of these eels, no horse is killed on the second day. These fishes require repose and plenty of food in order to the production or accumulation of a great quantity of the electro-galvanic fluid. When the eels came towards the bank they were very easily taken: little harpoons attached to long cords were thrown at them, and two were sometimes caught at once, and that without a shock being felt, the cord being very dry and of considerable length.

"Having seen that these eels are capable of overthrowing a horse, and of depriving it of all sensibility, it may well alarm a person to touch the creature when it is first drawn out of the water. So great, indeed, is this fear among the natives that none of them would venture to disengage those which we captured from the cord of the harpoon, or carry them into little pits filled with fresh water which we had made on the bank to receive them. We were, therefore, ourselves obliged to receive the first shocks, which were by no means slight; the strongest far exceeded in intensity the most severe electric strokes which I have accidentally re-

ceived from a large Leyden jar, completely charged; and we easily believed, from that circumstance, that the statement of the Indians is not exaggerated when they assert that if persons are struck while swimming either on the arms or legs by one of these eels they are sure to be drowned, for so violent a shock may well deprive a man for many minutes of the use of his limbs. But if the gymnotus were to glide over the chest and bowels death would instantaneously result from the electric shock itself; for the heart, the visceral system, and the great cæliac plexus of nerves and its ramifications would be at once paralyzed." We trust this digression will be pardoned: we are desirous that the powers of this fish should be fairly appreciated, as the terror, agony, and death of the poor horses forced to endure its electric assaults will then be the less surprising. That this electric eel, indigenous in South America, should be taken by means of the horse, an animal of recent introduction, and in the mode described by Baron Humboldt, is not a little remarkable. Even in this case we see the influence of man, the controller of the destinies of the lower creatures around him.

With respect to feral or emancipated horses, it appears that a race is found in the island of Celebes, whence numbers are annually imported into Java for sale. They are larger and stronger than the horses bred in Java, which are mere dwarfs in stature, as, in fact, are the horses throughout Hindo-China, Malay, Borneo, Sumatra, the Philippines, and the Moluccas.

## CHAPTER IV.

### ON THE HORSE OF ANTIQUITY.

In turning to the days "which now of old we call," the times of antiquity, in order to trace back the history of the horse under man's dominion, we find ourselves environed with difficulties; for though mention is made of the horse in the sacred writings as early as the time of Joseph, the ruler under Pharaoh of the Egyptian territories, yet the question as to the people or nation by whom it was reclaimed remains still unsettled. Mr. Bell, in his 'British Quadrupeds,' concludes that the probability is in favour of the opinion that the Egyptians were the fortunate people who first reduced it to the obedience of servitude. That they possessed the horse at a remote epoch is very certain. The Scriptures, and the remains of sculpture and painting, sufficiently attest the fact; but, nevertheless, they do not prove that the Egyptians were the first to subjugate this animal, and render its powers, its swiftness, and its courage subservient to man's interest. On the contrary, we have some grounds for supposing it to have been introduced but a short time previously to the time of Joseph; and this introduction is still more probable when we consider that the horse is not a native of Egypt. It was never described as wild in that country by the earliest writers, sacred or profane, but always as a trained and domestic animal; and it does not appear how the Egyptians could have reclaimed the horse when no horse dwelt wild in their country. Mr. Bell, indeed, thinks that we may reasonably look either to Egypt, or to those parts of Africa that were in close relation to it, as the native locality of the horse before that event. If so, surely we may expect to find the true wild horse

(not the koomrah) still existing in Abyssinia or Nigritia, but of such an animal we read nothing; nor in the antique paintings representing the Egyptians discomfiting Nubian armies, do we find horsemen or chariots among the latter, though the Egyptians have war-chariots, in which the chiefs are depicted as dashing along.

In the vast army which Xerxes led against Greece, indeed, we read of Libyan charioteers, and of Asiatic Ethiopians, who instead of a helmet wore the skin of a horse's head, so contrived that the mane served for a crest; as well as of Ethiopians of the country above Egypt, which, though enumerated by Herodotus among the nations accustomed to mount on horseback, were not, he says, furnished with horses. But it was only about 481 years B.C. that Xerxes commenced his Grecian expedition, and at that period the horse had become widely diffused as a domestic animal, for even Solomon, who began his reign B. C. 1015, had introduced the animal from Egypt among the Israelites, by whom it had hitherto been neglected, and had charioteers and cavalry; and David previously reserved, after the overthrow of the Philistines, sufficient horses for a hundred chariots, after houghing the rest. If, however, we turn to the earliest notice respecting Egypt on record, even then a powerful state, we find no mention of the horse. In the year 1920 B.C., Abraham, driven by a famine from Canaan, passes into Egypt; and we read of the Pharaoh then reigning that he had sheep and oxen, and asses and camels, but nothing is said respecting horses or chariots, though men-servants and maid-servants are expressly enumerated.

About 205 years later (B.C. 1715) we find Joseph in power in Egypt, and we read of his riding "in the second chariot." We also find that during the continuance of the predicted famine, when money failed in the land of Egypt and the land of Canaan, Joseph sold corn from the royal granary for horses, for flocks, for cattle, and for asses.

About the year 1491 the Israelites departed from Egypt, and were pursued by the Pharaoh "with six hun-

dred chosen chariots and all the chariots of Egypt," and " his horsemen" and his army.*

It would appear, then, that in the interval of the two hundred years between Abraham's visit to Egypt and the elevation of Joseph, the horse had gained extensive footing as a domestic animal in that country, and that there were horsemen and charioteers.

Most authorities, we believe, agree, that it was during this period that a nomadic people, Hyksos, Cushites,† or Scythians, made an irruption into Lower Egypt, where they continued for upwards of a hundred years, under the government of their own kings. The reign of the Hyksos, or shepherd kings, lies, according to some authorities, between the years 1800 and 1600 B.C. Manetho's 17th dynasty consists of shepherd kings who reigned at Memphis, while in Upper Egypt, which, though disturbed, does not seem to have been subdued, Thebes was the seat of the Egyptian monarchs: the expulsion was effected by Thutmosis, or Thothmes I. of the 18th dynasty, according to Dr. Hales, after a war of about thirty years, and about twenty-seven before the commencement of Joseph's administration. He makes the invasion of these nomads to occur about the year 2159 B.C. (see 'New Analysis of Chronology'), and considers that their tyranny lasted for a period of 260 years; consequently the accession of Joseph to power according

* Horsemen are also alluded to in Genesis xlix. 17: "Dan shall be a serpent by the way, an adder in the path, that biteth the horse's heels, so that his rider shall fall backward."

† "The name of Cush in the Hebrew Scriptures is rendered by the Septuagint Αἰθιοπης, or Ethiopians. The people generally so termed in Egypt were the Ethiopians of Meroe, the subjects of Queen Candace; but the same name, as we learn from its use by Diodorus, was extended to some of the neighbouring nations, but always restricted to black people. Cush, in the older historical parts of the Old Testament, is however applied evidently to *nations living to the eastward of the Red Sea.*"—*Prichard.* It is to these latter that the title Cushite here applies; but from the ambiguity of the term, it would be as well to omit it. The subject has been discussed by Bochart and Michaëlis.

to this reckoning, would be about the year 1872 B.C. Be this as it may, we have here an irruption of warlike people, who had migrated from Western Asia, passing through Syria and Arabia, and forcing their way into Egypt, everywhere ravaging the country. After their expulsion from Egypt, the family of Joseph settled in the pasture-lands of Goshen, which the Scythic nomades had recently vacated; but many years after Joseph's death a king arose who knew nothing of him or his services; and Mr. Faber supposes that the Israelites, having greatly increased in the land of Goshen, began to meditate revolutionary projects, and invited the expelled shepherd-kings to return out of Palestine into Egypt, which fatal invitation led to the complete re-establishment of the pastoral tyranny. The native king, and a great part of his subjects, withdrew to Thebais and Ethiopia, but the people who remained, and the Israelites, were both alike subjected to oppression. This then was the new dynasty, "the king that knew not Joseph." Under these warlike strangers, he regards the pyramids to have been built, and this view of the subject is (with the exception of any revolutionary projects among the Israelites) adopted by the writer of the notes to the 'Pictorial Bible.' "We have stated," he says, "the probability that the oppression of the Israelites was under the dynasty of the shepherd kings. If therefore we conclude that the Hebrews were employed on the pyramids, we must conclude that they were not of native Egyptian structure, but were formed on the soil of Egypt by a foreign people. Of this it is a remarkable corroboration, that the pyramids are confined to that part of Egypt which the shepherd conquerors occupied, whereas we should rather expect to have found them, if native structures, in Upper Egypt, and the vicinity of the hundred-gated Thebes, the ancient and chief seat of the Egyptian religion, and of the temples and monuments connected with it. Whatever were the objects of these remarkable structures, we can discover no reason but this, which adequately accounts for our finding them exclusively within a limited dis-

trict. It is true Herodotus does not assign much high antiquity to the pyramids, but he was not even aware of the existence of a dynasty of shepherd-kings; and from his statement it would seem that the priests of Heliopolis, from whom he derived most of his information, exhibited a degree of reserve about the period of their origin, and of concealment concerning the thraldom of their nation, which equally accounts for his ignorance of some remarkable facts, and corroborates the impressions we have stated. Their reserve was noticed even by Herodotus, though he had no notion of its cause. He does, however, state incidentally, that some of the pyramids were called after the shepherd Philitis, who at that time fed his cattle in the neighbourhood; and he gives as a reason for this, that the monarchs by whom they were built were held in such abomination by the Egyptians, that the priests were unwilling to mention their names. The reason was, that during their reign the Egyptians were subject to great oppression and calamity, and were not even permitted to worship in their temples. It is not difficult to discover, through the gloss which the priests gave to this statement, that the pyramids were erected under the rule of a foreign people, whose religion differed from that of the Egyptians, and who acted with great oppression. This inference is the stronger when we consider that the native Egyptian sovereigns could not, according to the organic laws of the government, have acted as the founders of the pyramids did, and above all, could not have interfered with the public worship of the people; for the Egyptian kings were in general merely the adorned pageants of authority. The priests were the real sovereigns; they managed all the affairs of state, and all, even the smaller movements of the monarch, were subject to their direction and control. To this we may add that the various Arabian writers concur in the statement that the pyramids were built by a people from Arabia, who, after a period of dominion in Egypt, were ultimately expelled. There is every probability that though these shepherd-kings came immediately from

Arabia, their original migration was from lands further east, and it might not be impossible to track their progress by the pyramidal structures they have left in the lands they subjected to their rule. The Indian annals record a migration from the east of a race of Pali, or shepherds (see the Philitis above quoted from Herodotus). They were a powerful tribe, who in ancient times governed all the country from the Indus to the Ganges. Being an active, enterprising, and roving people, they by conquest and colonization spread themselves westward even into Africa and Europe. They took possession of Arabia, and the western shores of the Red Sea. We may connect this with another record of an ancient king, whose empire Vishnu enlarged, by enabling him to conquer *Misra-stan*, or the land of Egypt, where his immense wealth enabled him to raise three mountains, called Ruem-adri, the mountain of gold; Rujat-adri, the mountain of silver; and Retu-adri, the mountain of gems. These mountains were no doubt pyramids, and probably derived their names, as Dr. Hales conjectures, from the colour of the stone with which they were coated."

The vile character given by the priests to Herodotus of Cheops and Cephrenes, the reputed founders of two great pyramids, would scarcely have been breathed in the ear of a foreigner had those monarchs been of the Egyptian dynasty (see Herodotus, 'Euterpe,' ii.). Now, if we apply the information thus collated respecting the Egyptians and their shepherd or nomade oppressors to the origin of the domestic horse, the probability will appear that it was brought with the hordes migrating westward from Asia, and thus introduced into Arabia and Egypt, and that we must look to the deserts north of Hindostan as its cradle. It is from those regions that the Egyptians acquired this noble and valuable animal; it is not one of the animals of their country, but was conveyed to them by their conquerors—*nomades* to whom the horse was most important, *warriors* rapidly extending their conquests, to whom it was indispensable. On their expulsion from Egypt previously to the time

of Joseph (having occupied the country for upwards of two hundred years), their horses and cattle became the spoil of the Egyptians, who, doubtless, had already learned from them to be charioteers and horsemen, and were thus the better enabled to carry on the war. Subsequently in Egypt—then the granary of that portion of the globe, with a productive soil, and the centre of commerce, to which caravans brought incense from Arabia; spices from India; wine from Phœnicia; gold, ivory, and slaves from Nigritia, in exchange for corn and fine linen—the horse greatly multiplied, and became celebrated for beauty, force, and spirit. It is to the Egyptian war-horse, or, more probably, to the progenitors of that stock, in the possession of nomade warriors, that the unknown author of the Book of Job refers, in a description of unequalled grandeur: "Hast thou given the horse strength, or clothed his neck with thunder; canst thou make him afraid as a grasshopper? The glory of his nostrils is terrible (the grandeur of his neighing is terror). He paweth in the valley, and rejoiceth in his strength; he goeth on to meet the armed men; he mocketh at fear and is not affrighted, neither turneth he back from the sword. The quiver rattleth against him, the glittering spear and the shield. He swalloweth the ground with fierceness, neither believeth he that it is the sound of the trumpet. He sayeth among the trumpets, Ha, ha! and he smelleth the battle afar off, the thunder of the captains, and the shouting."

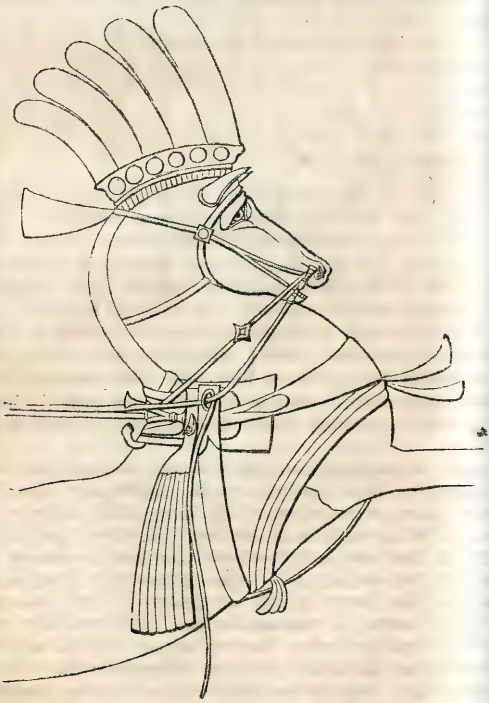
From the nomades, or Hyksos, many of the Canaanitish tribes received the horse, as well as the Egyptians; but it was from the latter that Solomon obtained his stud—horses for one thousand four hundred chariots, and twelve thousand head of cavalry; though in this point, no less than in his alliance with Egypt, he acted in defiance of the Mosaic injunction: "But he (the king) shall not multiply horses to himself, nor cause the people to return to Egypt to the end that he should multiply horses; forasmuch as the Lord hath said unto you, Ye shall henceforth return no more that way" (Deut. xvii. 16). In the days of David there were neither charioteers

Egyptian Horseman.

nor horsemen in the army, nor had there been such from the time of Moses. Absalom, indeed, was mounted on a mule in battle, but the mule appears to have been then used by the Israelites by way of distinction; for we subsequently find David giving directions that Solomon, whom he appointed to reign in his stead, should make a procession, mounted on his "own mule." The ass, before, and long after, was the animal ordinarily ridden.

From an abundance of casual notices in the Scriptures, we learn that both charioteers and horsemen, or cavalry, formed part of the army of the Egyptians, and also of the Philistines and other nations. We need not refer to the numerous passages in point, which a reference to Cruden's 'Concordance,' under *Horse* and *Horsemen*, will bring before the reader, yet one is especially worthy of consideration, in the second book of Chronicles, xii. 2, 3 (B.C. 957): "And it came to pass that in the fifth year of King Rehoboam, Shishak (Sesonchis, Manetho; —Sheshonk, Phonetic signs), king of Egypt, came up against Jerusalem, because they had transgressed against

the Lord, with twelve hundred chariots and threescore thousand horsemen; and the people were without number that came with him out of Egypt—the Lubims (*Libyans*), the Sukims (inhabitants of the mountains on the western coast of the Red Sea, troglodytæ), and the Ethiopians." From this narrative we distinctly learn that vast bodies of cavalry swelled the Egyptian armies;



Chariot Horse.

yet, though the horse is found carved and depicted abundantly in historical groups on the remains of Egyptian antiquity, we believe that except where enemies are portrayed, and then only in two or three instances, no mounted Egyptian, with the exception of one, is represented in the whole range of the sculptured and painted antiquities of that nation. A copy of this will be regarded with interest; it is of a late, probably Roman, period.

On the contrary, warriors in chariots drawn by horses are abundantly represented, and often admirably executed. The horses are adorned with elegant trappings, and often have the head crowned with a plume of feathers, or, perhaps, with thin glittering metallic plates, forming a sort of helmet-like crest, as seen in the annexed figure.

The war-car is generally drawn by two horses, and is mounted on two low wheels; it is of small size, the warrior having scarcely more than standing-room. He is generally armed with a bow and arrows, or a javelin; sometimes with a bent sword of singular form, adapted for cutting, and the reins are lashed round his body.

The symmetry of these horses proves them to have been of a high-bred race; the eye is full of fire, the head small, the neck arched, the body compact, the limbs clean, and the tail well set on, long, and flowing. Their action is often depicted as spirited, conveying an idea of fleetness and courage. It was not only in battle that the horse and chariot were employed by the ancient Egyptians; for frequently in his chariot the chasseur followed his game, intercepting it as it fled before the dogs, and discharging a well-aimed arrow. But excepting for these purposes and on state occasions no use, at least as a general rule, appears to have been made of the horse by the Egyptians—it was not one of their beasts of common labour. The ox, as numerous delineations prove, was used for the plough, and for treading out the grain and the ordinary works of agriculture, &c.; yet, on the other hand, the horse was not one of their sacred animals—no instance of the em-

Egyptian Painting.

balmed head of the camel, horse, or ass has hitherto been discovered in the catacombs or repositories for the bodies of their animal-divinities, and in a few instances only has the horse been detected among their hieroglyphics: it occurs at Medinet-Abou and at Edfou.

We here give the copy of a very interesting painting, one of a series of Egyptian delineations in the British Museum. In the upper compartment is a chariot, to which is yoked a pair of horses, the foremost black, the other (of which the head, limbs, and tail are partially shown) red. In the lower compartment a reaper is cutting corn, and before him is a chariot, in which a man is seated, holding the loose reins of two animals, one of which is about to eat or drink from a vessel before it. These animals are of a milk-white colour, and are usually regarded as horses, but horses they certainly are not. Independently of the general figure, which is not that of the horse, a streak appears to run down the shoulder of the foremost, and the tail is tufted only at the extremity. They may be mules, yoked to a car in which the sheaves of corn cut by the reaper are to be carried away; but we incline to the opinion that they are onagri, or wild asses, domesticated; which by the Scythians were made to draw chariots both of peace and war. Herodotus enumerates, amongst the army of Xerxes, Indians who had led horses and chariots drawn by horses and *wild asses** (Polymnia). It may be said, perhaps, that the ears are too short for those of the wild ass: they are, however, larger than those of the horses in the compartment above; and on such minutiæ, well knowing that artists, however generally faithful in their delineations, sometimes exaggerate or modify lesser details, no great stress can be laid.

To return to the point whence we started, we think that our sketch of the horse in ancient Egypt (where nothing is to be heard of it in the Scriptures till the time of Joseph, subsequent to the shepherd dynasty) abundantly proves that neither on the plain of the Nile,

* See also Isaiah, xxi. 7.

nor in Ethiopia, nor yet in Arabia or Syria, was it first domesticated; but that we must seek for its original training-ground in the great deserts of Asia, whence nomadic tribes radiated eastward, westward, southward, and even northward — Scythic and Tartar hordes, the rapidity of whose movements and conquests could not have been effected without such an animal. In these deserts the wild horse and various species of wild ass still exist, and to them therefore we naturally look when reflecting upon the region in which the wild horse first submitted to bit and bridle; and here it may not be out of place to call attention to a people of antiquity so distant that even those whom we term the ancients placed them among the beings of the heroic age, and gave them a strange and wondrous origin. We allude to the Centaurs, whose combats with the Lapithæ the ancient

Centaur.

and sculptors have so vividly depicted. Fables often originate in facts. The centaurs are sculptured as men united to the shoulders of horses—the two beings thus constituting one compound whole. Such, be it remembered, did the American Indians deem the Spanish horsemen on first encountering them; and had the story been transmitted to a nation of sculptors and poets, the friezes of temples in the western world might have represented such combats as those of the Parthenon of Athens. The centaurs were evidently a tribe of horsemen who during what is commonly termed the fabulous times of history, when demigods performed prodigies on the earth, made their appearance in Thessaly—wanderers, most probably, from Scythia; there they established themselves, and long afterwards the Thessalian cavalry were the most renowned of Grecian horsemen. Thus even the obscure fables of remote antiquity, which afforded scope to the genius of Phidias, seem to corroborate our ideas respecting the regions in which the subjugation of the horse was effected. Time immemorial have the Kirguise, the Kalkas, and Kalmucs been celebrated as horsemen; and who has not heard of the Scythians, Medes, and Parthians famed as equestrian archers?

We learn from Herodotus that the Babylonians possessed vast numbers of horses. Tritantæchmes, a satrap of Babylonia, had, in addition to his war-horses, 800 stallions and 16,000 mares. Herodotus notices the cavalry of the Bactrians and Caspians. Speaking of the horses of India, the same author says, that though the quadrupeds and birds of that country exceed in size those of any other, the horse is an exception, for it is far surpassed by the Nisæan horse of the Medes; of which he elsewhere states that ten of extraordinary stature, richly caparisoned, and consecrated to Jupiter, swelled the pageant of the march of Xerxes. The chariot of Jupiter was drawn by eight white horses, accounted sacred among the Persians, and was followed by that of the monarch drawn by Nisæan steeds. According to Strabo, it was a matter of doubt whether the Nisæan horse was

originally from Media or Armenia, as specimens of the breed were to be found in both countries. This casual notice of the inferiority of the Indian horse to that of Media or Armenia is very interesting, as the old Indian races at the present day are of bad figure and proportions, and many are merely ponies. Wherever fine, well-made horses are seen, they are the result of repeated crossings with the best breeds of Arabia or Persia; such are those noticed by Colonel Sykes on the banks of the Beema and Mahr rivers, in Dukhun. The importation of English blood-horses has also contributed to the improvement of some of the stocks; yet, in many districts, but a slight amelioration has taken place after several years of attention.

In a letter to Colonel H. Smith, Major Gwatkin, superintendent of the Hon. East India Company's stud in Northern India, describes the original mare of that country as follows:—"The original mare of India is very inferior in shape, and generally a jade, with narrow chest, drooping mean quarters, and, if beyond fourteen hands three inches, *runs to leg*. Even to this day, after the importation of many English horses, this defect continues, and you never meet that great length, with depth of brisket, which is so distinguishing a mark of the English horse, without the fault of a long back." Again he says, "The real native horses of the Dooab (between the Ganges and Jumna) were formerly a coarse, weedy breed, but for a century have been undergoing improvement; and within the last twenty years it has been great." We have previously alluded to the inferiority of the horse east of the Ganges and Burrampooter, through the Birman empire, Malaya, and the adjacent groups of islands. It would seem in fact as if India, and especially the intertropical regions eastward, were from some cause or causes unfavourable to the horse. In India, even by crosses with the best breeds of Arabia, Persia, and England, any amelioration has been a work of time. Formerly, the chiefs of Rajpootanah were supplied by Persian merchants, who brought horses of a superior quality—a mixture of Turkoman, Bokhara,

and Arab—which they sold for three or four thousand rupees, or even more.

That Hindostan and the regions eastward received the horse at a very remote date cannot be doubted; but most probably it was neglected, for it appears that in the time of Darius, and perhaps long before, the camel was in use among the Indian nations; and these animals "were quite as swift as horses, and much more able to carry burdens." It is not to India more than to Egypt that we must look for the first subjugation of the horse.

Let us now pass into Europe. Supposing that the nomade tribes of Central Asia were among the first to domesticate the horse, was it not (so may the question be put) subjugated also at an early period, from a wild stock, then revelling in the vast plains of Central and Southern Europe, including the British Islands? This question involves a point first to be settled, viz., whether the geographical distribution of the wild horse did, or did not, extend through Europe, at an early period, say from twelve to eighteen hundred years before the Christian era. Who can tell? what are our records? Nothing. Varro may talk of wild horses in Spain, and other writers may notice their existence in Sardinia and Corsica, but we have no real authority for saying that these horses were not feral—emancipated—like those of America and the Falkland Islands. Colonel H. Smith talks about a race of indigenous horses or rather ponies in Britain, found by Cæsar partly subdued, and "still imperfectly represented by the Scottish, Welsh, New Forest, and Dartmoor breeds." Julius Cæsar did indeed encounter war-chariots drawn by horses, but he does not notice the existence of wild horses in our island, nor know we of any ancient writer who does. Be it remembered that when Cæsar visited our shores, the domestic fowl, confessedly of Indian origin, was domesticated in the country, brought thither, perhaps by the Phœnicians, perhaps by some of the tribes of early settlers, Celtæ or Cymri, who had gradually worked their way westward from the East. It is to a similar introduction that we attribute the existence of the horse in our island when

the latter was visited by Julius Cæsar. A feral race indeed may have roamed over the hills and plains of the island; but we question whether an indigenous breed of horses, to which the term wild is strictly applicable, existed within the range of historic periods in the British islands. The British horse was small, but strong and spirited; and the skill with which the charioteers managed their war-cars excited the invader's admiration. Probably the ancient British horses much resembled those used by the Cossacks of the Don and Volga at the present day. They were imported into Italy; and a breed of ponies, or manni, was in request, as St. Augustin informs us, among strolling performers, who trained them to various feats.

Various breeds of horses are noticed by the classic writers; and some of them are celebrated for beauty and power. To the Nisæan we have already alluded. Ammianus Marcellinus places the pasture-grounds of this breed in the plains of Assyria, west of Mount Corone. It was of first-rate qualities, and highly valued. At the battle of Platea, the general of the Persian cavalry, Masistius, rode a Nisæan horse, having a bridle of gold, and magnificent trappings; and white horses of the same breed drew the royal chariot. Another breed was the Lydian, of great strength and stature. The Parthian, Thracian, and Thessalian breed (that of the centaurs) appears to have been piebald. By the Parthians this race was held in high request. Virgil describes Turnus as mounted on a Thracian horse, with white markings—

"——————— maculis quem Thracius albis
Portat equus."—*Æneid*, lib. ix. lines 49 and 50;

and elsewhere he describes the two-coloured spotted Thracian horse on which Polites rode—

"——————— quem Thracius albis
Portat equus bicolor maculis."—*Æneid*, lib. v. lines 565 and 566.

Hesiod calls Thrace the nursery of martial steeds; and their fleetness and piebald markings were noticed by Homer. Speckled horses are alluded to by Zechariah, ch. i. v. 8;

and it would appear that the Tartar conquerors of Persia rode upon piebald steeds; and also that the Huns possessed a similar breed. Attila is painted by Raphael with one of these horses; and pied chargers were highly esteemed during the middle ages. The antiquity of this race (now neglected, or used principally by equestrian performers, and doubtless deteriorated) is very great, but we hesitate to regard the stock as having descended from a distinct species of Equus, though such is the opinion of Colonel H. Smith, who terms it "*Equus varius*, the Tangum, piebald, or skewbald horse," and derives it from the kiang of Moorcroft, which is evidently the same, he considers, as Dr. Gerrard's wild-horse mentioned in his observations on the Skite valley. Colonel H. Smith describes the piebald horse, known as the Tangum horse in India, as being white about the limbs and part of the back, and marked by large clouds of bay on the body, head, and neck. "In general the head is included in the bay colour, and where it comes down over the shoulder and the thigh that colour deepens into black; there is also a proportion of black and white in the mane and tail; not unfrequently a black edging on the ears; and the eyes are liable to be pale-bluish or different. The horn of the hoofs is pale-yellowish, with two or three slender vertical black streaks, and the frogs wider. On the inner arm the callosities are large, but scarcely perceptible on the hind legs. The hide itself is dull white or greyish, often spotted with a darker colour, or *ladre*, particularly on the inside of the eyes and nose. In form the Tangum stock is compact, rounded, somewhat fleshy, with rather large bone; the head thick, though small; the neck long, rigid, but little arched, somewhat full; the mane rather erect, and tail not superabundant; short hair running down the ridge of the dock, and long hair at the sides; it is set on low; the shoulders are well placed, but thick, the withers rather full; the barrel round, with flank well ribbed up; the quarter full. Few rise to fifteen hands in height, and most are little above twelve or thirteen; but they stand on rigid pasterns, have hard hoofs, vigorous sinews, and move with unflinching security through the

most dangerous mountain passes; they bear fatigue and privation with unconquerable spirit, have good speed and wind, and are very tractable and docile.

"Although the Tangum blood mixes freely with the other stocks, its characteristic distinctions are sufficiently indelible, as is proved by the foregoing description taken in India, being almost entirely correct, when compared with the breeds of Europe, though the last-mentioned have been separated from the parent stock for many ages, and have been liable to unceasing crossings." Such is the delineation of a stock which has maintained its ground from remote antiquity, and of which, in spite of crossings, the characteristics perpetually manifest themselves, even in the western world, where the admixture of races is carried to the greatest degree; while in China, and many parts of the East, the piebald breed extensively prevails.

Among other breeds of antiquity were the Sidonian and Trinacrian or Sicilian, mentioned by Virgil, which appear to have been light and fleet; and the Erythræan, from the Red Sea, of a white colour speckled with black. We may also notice the Phrygian breed, of a light ash colour, known in Homer's time in Asia Minor; and a white race, spotted with black, obtained by the Persians from the Red Sea. There was a white Cappadocian race; and it was chiefly of horses, mules, and sheep that the Cappadocians paid a tribute to the Persian monarch, the high table-lands of Cappadocia being admirable pasture-grounds. An extensive trade in supplying with horses and mules the neighbouring nations was carried on; and to this Ezekiel alludes in his denunciation of Tyre—"They of the house of Togarmah traded in thy fairs with horses, and horsemen, and mules," ch. xxiii. v. 14. Herodotus (Melpomene) observes that great numbers of wild horses of a white colour graze about the borders of a lake from which the Hypanis flows to join the Borysthenes, before entering the Euxine; it is probable that these were of the same race as those of Cappadocia. Armenia was also celebrated for its breed of horses, of which Strabo speaks in praise. When the

Romans had extended their conquests in the East, they drew vast numbers of their cavalry horses from Armenia; and to this country, including Cappadocia, Ezekiel's expression, "the House of Togarmah," most probably applies. Cilicia also was the nursery of a fine breed of horses, similar to those of Cappadocia.

Virgil's description of the white Thracian steeds of Turnus is no doubt applicable to the white horses of ancient Cappadocia:—

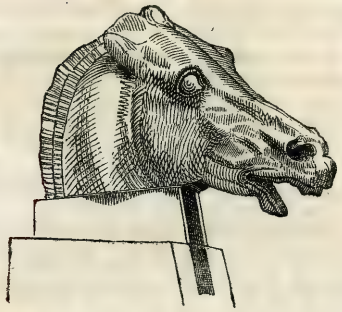
"Poscit equos, gaudetque tuens ante ora frementes:
Pilumno quos ipsa decus dedit Orithyia;
Qui candore nives anteirent, cursibus auras.
Circumstant properi aurigæ, manibusque lacessunt
Pectora plausa cavis, et colla comantia pectunt."—
*Æneid*, lib. xii. line 82 *et seq.*

He calls for his steeds, and exults to see them neighing in his presence—
Steeds which Orithyia herself gave as a royal present to Pilumnus,—
In whiteness surpassing the snow—the winds in speed.
The officious grooms stand around, and with their hollow hands
Clap their stroked chests, and comb their waving manes.

It was from various sources that the Greeks derived their breeds, of which the Thessalian was in great repute, as were also the Ætolian and Acarnanian. Besides these, we read of Cretan, Argolic, Arcadian, Chaonian, and Mægarian races, and some others.

In the sculptures of ancient Greece, the horses are delineated as full of fire and spirit; the head is animated, and the action energetic; but we think that the neck is in general too thick for the volume of the barrel. The annexed figure represents the sculptured head of a horse (supposed to be executed by the hand of Phidias) in the British Museum. The mane is thick and hogged, or cropped, so as to stand erect; a fashion which seems to have prevailed very extensively in ancient times.

Several breeds of horses derived from various sources existed in ancient Italy; some of which were used as



Antique Horse's Head.

chargers, others for chariot races, in which both the Greeks and the Romans delighted—

"Sunt quos curriculo, pulverem Olympicum
Collegisse juvat; metaque fervidis
Evitata rotis, palmaque nobilis
Terrarum dominos evehit ad deos."—*Horace.*

"In clouds th' Olympic dust to roll,
To turn with kindling wheels the goal,
And gain the palm, victorious prize!
Exalt a mortal to the skies."—*Francis's Translation.*

Such races are described both by Homer and Virgil with great spirit.

Virgil's description of the war-horse in the Georgics (lib. iii.) is exceedingly noble. The following is Sotheby's translation of the finest part of the passage:—

"But at the clash of arms his ear afar
Drinks the deep sound, and vibrates to the war;
Flames from each nostril roll in gather'd stream,
His quivering limbs with restless motion gleam;
O'er his right shoulder, floating full and fair,
Sweeps his thick mane, and spreads his pomp of hair;
Swift works his double spine; and earth around
Rings to the solid hoof that wears the ground."

Compare this description with the following by Shakspere in his Venus and Adonis:—

"Round-hoof'd, short-jointed, fetlocks shag and long,
Broad breast, full eye, small head, and nostril wide,
High crest, short ears, straight legs, and passing strong—
Thin mane, thick tail, broad buttock, tender hide,
Look what a horse should have he did not lack
Save a proud rider on so proud a back.

Sometime he scuds far off, and there he stares,
Anon he starts at stirring of a feather;
To bid the wind a base he now prepares,
And wheth'r he run or fly they know not whether;
For through his mane and tail the high wind sings,
Fanning the hairs, which wave like feather'd wings."

In the figures of the war-horse on sculpture, we look in vain for the floating pomp of mane. See the subjoined delineation of the attack of a Roman horseman on a barbarian soldier, from an antique gem.

Warrior on Horseback.

Among the breeds of horses in Italy were the Lucanian of large stature, the Etruscan, the Hirpinic, the Apulian or Tarentine, and others. The Romans in their choice of horses seem to have been much influenced by colour; and it is remarkable that while Virgil in his account of the white horses of Turnus (Æneid) pictures them as of exquisite symmetry, he says in his Georgics, "Honesti spadices glaucique; color deterrimus albis et gilvo;" that is, bays and bluish greys are excellent; the worst colours are the white and dun. It is evident that they did not understand the maxim that a good horse can never be of a bad colour, otherwise they would not have believed that bay horses were best for lion-hunting, slate-grey for the pursuit of the bear, and black for the chase of the fox, &c.

Doubtless the wealthier Romans possessed admirable horses, for the Parthian realms—Spain—North Africa, and the East—were open to them; and though dealers, according to Vegetius, often palmed (*more solito*) upon rich purchasers inferior horses for steeds of high and celebrated breeds, still horses of the finest race, as Hadrian's Borysthenes, must have been introduced; nor indeed could it be otherwise, when we consider that to Rome were brought the spoils of conquered nations, and that the countries in which the horse exhibited its highest and most noble qualities became portions of the Roman empire. Still the Romans were not an equestrian people, nor did the government institute any proceedings relative to the improvement or maintenance of valuable breeds. The force of the Roman army consisted in its legions; the cavalry were contemptible. It was always to the firm array of the foot soldiers that the event of the battle was to be trusted; for the cavalry were never able to cope with the mounted troops of other nations, unless, indeed, by the aid of foreign equestrian auxiliaries. The same remarks apply in a great measure to the Greeks: the Thessalian cavalry indeed was celebrated; but Lacedæmon and Athens gloried in the serried phalanx.

The force of an army undoubtedly lies in its infantry; unless, indeed, as it was in the middle ages of Europe,

the infantry be composed of an undisciplined, ill-armed, ill-provided rabble, drawn hastily from the plough (the bodies of trained archers excepted), and opposed to cavaliers sheathed in complete mail, and mounted on heavy war-horses. Under such circumstances even, the archers have decided the day, which from the overwhelming force of numbers must otherwise have been lost. Witness Poictiers and Agincourt. An able writer, however, states that there are instances in which a well-disciplined cavalry has turned the scale of fortune in war. "Cavalry contributed greatly to the conquests of Philip and Alexander; and the superiority of Scipio over Hannibal in cavalry was the cause of the victory at Zama. In modern times Seidlitz gained by his cavalry the battle of Rosbach in 1757, and the victory at Wurzburg, in 1796, was decided by the same arm."

Though not an equestrian people like the Thracians, Palmyrenes, or Numidians, still the Romans were fond of equestrian spectacles;—among other games was one termed Ludus Trojanus, or Troja, in which boys or young men, armed with blunt darts, spears, &c., mounted on horses and under leaders, divided into distinct companies, and wheeled around in attack and retreat, and in mazy movements galloped about the circus, pursuing and pursued, in representation of an equestrian conflict. This mimic combat is described by Virgil as performed by the Trojan and Tinacrian youth, in the presence of Æneas, on the shores of Sicily, in honour of Anchises there buried; and the poet afterwards adds,

"Hunc morem cursûs, atque hæc certamina primus
Ascanius, longam muris cum cingeret Albam
Retulit;—et priscos docuit celebrare Latinos;
Quo puer ipse modo, secum quo Troïa pubes;
Albani docuere suos,—hinc maxima porro
Accepit Roma, et patrium servavit honorem;
Trojaque nunc, Pueri, Trojanum, dicitur, agmen."

"This mode of tilting, and these mock-combats, first
Ascanius, when he was enclosing Longa Alba with walls,
Renewed,—and taught the ancient Latins to celebrate;

As the boy himself,—as the Trojan youth with him had practised them.
So the Albans taught their posterity.—Hence in aftertimes Imperial Rome received them, and preserved them in honour of her ancestors—
And at this day, *Troja* is the game called,—the boys, the *Trojan* band."

Julius Cæsar revived this equestrian game, and Augustus, as Suetonius informs us, very frequently ordered it to be played, being partial to the exhibition,—a circumstance which may account for Virgil's felicitous introduction of it into his poem.

In their appreciation of the qualities of breeds or races of horses, the Romans appear to have been very superficial; and we agree with Col. H. Smith, that "where in the government statistics, the laws, and colloquial language, horses were distinguished in the following classification," no very clear notions on the subject could be ascertained. Colonel H. Smith gives the following résumé:—

"1. Equus Avertarius or Sagmarius.—The sumpter-horse.
2. E. publicus.—Horses maintained by Government for the Equites.
3. E. sellarius, or Celes.—Saddle horses.
4. E. agminalis.—Horses maintained for public purposes on cross roads where there were no posts.
5. E. cursales, or Veredi.—Post horses.
6. E. desultarii, or Pares.—Horses of mountebanks.
7. E. funales.—For the quadriga, or for the two-horsed carriage.
8. E. lignei!—Wooden horses, for boys to learn riding upon!!
9. E. singulares.—Horses of volunteers.
10. E. triumphales.—The four or six horses that drew the triumphal cars."

To these may be added horses destined for the circus, which could not be legally applied to any other purpose.

We cannot but smile at the grave enumeration of the equus ligneus,—yet the "horse foaled of an acorn,"—the wooden horse, was once a military punishment of

severity in the British army, and is alluded to by Sir Walter Scott in his novel of 'Old Mortality.' Perchance the equus ligneus may not have afforded a very easy seat to the Roman youths.

Spain had fine breeds of horses; Martial celebrates that of Bilbilis (now Callahorra on the Ebro). Another was the Lusitanian, famous for swiftness, and valued for the course in the circus by the Romans.

In Germany, several good and serviceable breeds, as the Helvetian and the Alan, &c., are recorded; the Menapian of Batavia was noted; and there were several races in repute along the banks of the Danube.

We have already commented upon the horse of ancient Egypt; in other parts of Africa noted races also existed, as in Libya, and along the Upper Nile. Numidia, Mauritania, Gætulia, and Cyrenaica possessed fleet and spirited horses, and all the horses of Barbary, Nubia, Bornou, &c., are renowned for spirit and endurance.

At the present day we occasionally meet with dun-coloured horses, having a black stripe along the spine, and sometimes even with a faint cross-bar over the withers, and a tendency to dark streaks on the hocks. This breed is of high antiquity. Colonel H. Smith says that it is typical of the generality of the real wild horses still extant in Asia, and the semi-domesticated both there and in Eastern Europe. Though this dorsal stripe appears to indicate an approximation to the asinine group, it is almost the only point of resemblance, for the head is small and square, the mane peculiarly long and flowing, the limbs are clean and vigorous, and the general contour compact. These horses are remarkable for spirit and intelligence, as well as power of endurance, but they are never of large size. It is remarkable that, interbred as the domestic horse is, these markings and peculiarities should continually break forth, as if there was a tendency to re-assume a primitive condition. Was not the ancient British horse of this breed, which is still common in Prussia and along the Ukraine?

Reverting to our opinion that it is to Central Asia

and the adjacent parts of Europe we must look as the region of the wild horse, and where its subjugation was first effected, we cannot omit to notice the views of Buffon, who asserts Arabia to be the primitive seat of this noble animal, stating at the same time that it is still to be found there wild. This is a manifest error. Time immemorial, Arabia, including Syria, has been the abode of the camel, that patient slave of wandering hordes, who with their flocks and herds and asses migrated in search of pasturage, and pitched their tents as choice or accident might determine; but in the histories of the early patriarchs we hear no mention of the horse. Herodotus says that the Arabian troops, in the army of Xerxes, were mounted upon camels no less swift than horses; but they followed in the rear, lest the horses should be affrighted at the sight of the camels, which they cannot bear.* Even now, horses are by no means so common among the Arabs as is generally supposed, but camels are indispensable. "No family," says Burckhardt, "can exist without one camel at least;—a man who has but two is reckoned poor,—thirty or forty place a man in easy circumstances,—and he who possesses sixty is rich." Some sheikhs, he says, have as many as three hundred camels; and one who was his guide to Tadmor (Palmyra) possessed a hundred camels, between three hundred sheep and goats, yet only two mares and one horse. Among

* We may here observe, *en passant*, that the same authority, in his history of the invasion of Scythia by Darius, states that the Scythian horses were terrified by the braying of the asses in the Persian army. "Prejudicial to the Scythians in the assaults they made, and advantageous to the Persians, were two causes, viz., the cry of the asses and the form of the mules. Scythia produces neither of those animals, the climate being too cold to be congenial to them. The braying of the asses threw the Scythian horse into confusion, and frequently as they were advancing to fall upon the Persians, their horses no sooner heard the noise, than in great fright and with erected ears they turned short about, having never before heard such a voice, or seen such a shape."

the Aeneze tribes Burckhardt could not find more than one mare to six or seven tents; but in some other tribes they were more numerous.

That an animal so noble and valuable as the horse should be mixed up with the mythology and superstitious rites of many nations of antiquity, is only what might be expected. Neptunus (Græcè Ποσειδῶν, Doricè Ποτειδᾶν) is said to have produced the horse in his contest with Minerva for the right of naming the city of Athens. According to some writers, this fable is intended to signify that the horse was imported into Greece by sea—an explanation far from satisfactory. It is indeed not very easy to give a reason for the connexion of Neptune with the horse; but from several passages in the Greek writers, we glean that he was regarded as a kind of equestrian deity, as well as the god of the sea. Hence his titles Hippius and Hippodromus, as president of the horse-races. In the month of August the solemn games called Consualia were held in honour of Neptune; and at the same time horses and mules were adorned with garlands.

Colonel H. Smith states that in the most ancient legislation of India, dating back to a period nearly coeval with Moses, the sacrifice of the horse to one of their deities was enjoined with awful solemnities, and that it was only next in importance to the immolation of a human being. In most nations of antiquity we may trace indications of a sort of veneration for the horse. It figures among the constellations; it was the emblem of victory; it was depicted on the banners of armies; the horse-tail floated as a standard. Horses drew the chariot of the sun, were led in procession before the shrine of the sun-god, and annually sacrificed; nor were the Israelites exempt from these superstitious observances. In the 2nd Book of Kings (ch. xxiii. 11) we read of Josiah, that "he took away the horses that the kings of Judah had given to the sun, at the entering in of the house of the Lord, by the chamber of Nathan-melech the chamberlain, which was in the suburbs, and burned the chariots of the sun with fire." The following interesting note on

this passage we take from the 'Pictorial Bible:'—"Horses were anciently sacrificed to the sun in different nations, their swiftness being supposed to render them an appropriate offering to that luminary. Some think that the horses here mentioned were intended for this purpose. We doubt this; for if so, they would probably have been sacrificed before this time. The Jews generally suppose the horses were intended for the use of worshippers when they rode forth in the morning to meet the sun and render him their homage; but the mention of chariots immediately after, seems to point out another and more obvious explanation; viz., that they were employed to draw the sacred chariots dedicated to the sun. In the chariots themselves, the rabbins inform us, the king and nobles rode when they went forth to meet the morning sun. This is possible, but more probably the horses and chariots were used in the sacred processions, and employed perhaps on such occasions to carry the images of the sun. The ancient Persians, who were sun-worshippers, dedicated to that luminary white horses and chariots, which were paraded in their sacred processions; and it is thought that other nations borrowed the practice from them. Whether so or not, we find the same idea of associating a chariot and horses with the sun, to denote the rapidity of his apparent progress common in the poetry and sculpture of classical antiquity. The sun was supposed to be drawn daily in a chariot by four wondrous coursers through the firmament; and we all recollect the fate of the ambitious Phaëton who aspired to guide the swift chariot, and control the strong coursers of the sun. The names of these coursers have been preserved, Eous, Pyrois, Æthon, and Phlegon, which are supposed to represent the four divisions of the day. In his chariot the personified sun was represented generally as a young man with a radiant head, and driving whip in hand. He is sometimes seen thus issuing from a cave, to denote the commencement of his daily career. In a medal of the Emperor Heliogabalus, who had been a priest of the sun in Syria, and who established the Syrian form of his worship at Rome, the human figure is want-

ing, and we only see in the chariot a stone, round below, and rising pyramidically to a point above. The Syrian origin of this representation renders it very interesting. That the sun is intended, is indisputable from the inscription, which as usual is *Soli invicto*,—To the invincible Sun. It is remarkable, that on ancient medals and gems the horses are not always represented as abreast, but sometimes as turned towards the four quarters of the globe. The ideas which led to the representation of the sun as a charioteer, and assigned to him a chariot and horses, are too obvious to require explanation."

Herodotus informs us that the Scythians (who had no cities or enclosed towns, but tents only, and who fought on horseback, armed with bows and arrows) sacrificed horses to the god of war as well as human victims,—prisoners taken in battle. An altar to Mars is found in every district, constructed in the following manner:—"A great quantity of small wood tied up in bundles is brought together and placed upon three stadia of land, covering the whole ground both in length and breadth, but not of a proportionable height. The top is quadrangular, three of the sides perpendicular, the fourth a gradual declivity of easy access. One hundred and fifty loads of faggots are annually brought to this place, because much of the wood rots every winter; on each of these heaps an old scimitar of iron is erected, which they call the image of Mars, and honour with yearly sacrifices of horses and other cattle in greater abundance than they offer to the rest of their gods." The animals are first strangled, then flayed,—the flesh is boiled on a fire made of the bones. Part is offered to the god. On the death of a Scythian king the body was embalmed, and laid upon a bed, surrounded by spears, in a deep excavation; one of his wives or concubines, a cupbearer, a groom, a waiter, a messenger, and several horses were strangled and deposited in the same receptacle, together with various utensils and cups of gold. The mouth of the pit was then covered over, and a high tumulus raised above. At the expiration of a year, the rites were thus concluded:—"They select such servants as they judge most

useful out of the rest of the king's household, which consists only of native Scythians, for the king is never served by men bought with money. These officers, fifty in number, they strangle, and with them fifty beautiful horses. After they have eviscerated the bodies, they fill them with straw and sew them up. They then lay two planks of a semicircular form, upon four pieces of timber (posts) placed at a convenient distance, and when they have erected a sufficient number of these frames, they set the horses upon them, first spitting them with a strong pole through the body to the neck; one semicircle supports the shoulders (or chest) of the horse, the other his flank, and the legs are suspended in the air. After this they bridle the horses, and hanging the reins at full length, upon posts erected for the purpose, mount one of the fifty young men they have strangled upon each horse, fixing him in his seat by spitting the body up the spine with a straight stick, which is received into a socket in the beam that spits the horse. They then place these horsemen round the tumulus and depart."*

It would appear that the Scythians not only used the milk of the mare as food, but even obtained a cream from it, which was in great estimation.

Herodotus, speaking of a tribe of people beyond the Tanais, describes their horses as most admirably trained. The men subsist by hunting; climbing into the trees, they wait for the approach of the game attended by a dog and horse taught to lie down, in order that they may not be discovered. The hunter on the approach of his game lets fly an arrow, and then instantly mounts, and gives chace with his dog to the wounded animal.

To conclude our observations on this part of our subject, we may remark, first, that the earliest domestication of the horse appears to have occurred in remote

* We learn from Azara, that "when an Indian dies he is buried with his arms, his clothes, and furniture; and frequently the best horse is slaughtered upon his tomb." He is speaking more particularly of the Charruas tribe or nation.

antiquity, and in high Asia, whence probably it was carried westward by the various waves of colonization that rolled on even to our ultima Thule from those regions; and also southwards into the African continent on the one hand, and Hindostan on the other. Secondly, that in the most remote times there existed many different breeds or races, some probably the mingled, others the pure descendants of originally distinct species. Thirdly, that in antiquity the horse was used only as an arm of war, in the chase, or in pompous processions. Fourthly, that it was connected with the religious rites of many nations, dedicated and even sacrificed to divinities, and adopted as the standard of warriors. Who has not heard of the Saxon standard of the White Horse!

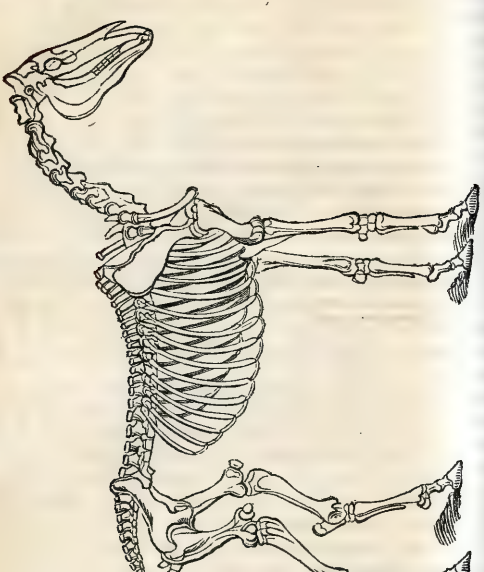
## CHAPTER V.

### ON THE PHYSICAL AND MORAL CHARACTERISTICS OF THE HORSE.

The form, proportions, muscular powers, and swiftness of the horse, combined with its spirit, docility, and intelligence, expressly fit it for the use of man. It is alike serviceable for draught and the saddle. One of those animals wisely and kindly designed by Providence for the benefit of the human race, its constitution is such as to permit its almost universal diffusion over the globe; and it is only in the high northern regions, where cold and the absence of proper food forbid its existence, and where the lichen-fed rein-deer takes the place at once of horse and ox, that some breed or race of this noble gift of the all-wise Creator is not naturalized. From its primæval nursery it has radiated in all directions; it has accompanied man in his wanderings, and like him has multiplied in regions to which by his agency it has even recently been introduced. To the industrious inhabitants of the thronged city—from the humblest to the crowned monarch—to the agriculturist, to whom belongs his "modus agri non ita magnus" (his moderate plot of land), and to the lord of manors—to the sportsman who follows the chase for pleasure, and to him who scours the plain in quest of prey and "lives upon his bow," a "mighty hunter before the Lord"—this noble, beautiful, but too often ill-treated creature, is either important or essential. It performs the drudgery of toilsome servitude, and swells the pomp of kings; it draws the peaceful plough, and dashes on in the shock of battle amidst withering volleys of musketry and the clash of gleaming swords. Man owes

a deep debt of gratitude to the horse, and is bound to acknowledge his sense of its value by humanity and kindness. Nor would we here forget that humble animal, pre-eminently the drudge of the poor man, the patient ass. Less powerful, less swift, less beautiful, less brilliant than the horse, yet its services claim for it far different treatment from that which too often it meets with; but which we fear will, until the lower orders of society become humanized by judicious education, be still continued. Differ as do the horse and ass in external characteristics, voice, and disposition, yet they closely resemble each other in anatomical structure; and the fact of their interbreeding proves their natural affinity. But the ass is far less adapted constitutionally for extensive geographical diffusion than the horse, and has made its way by far slower degrees into Western Europe. Even as late as the time of Queen Elizabeth it was rare in our country.

A glance at the skeleton of the horse will at once serve to convince us that the animal is formed at the same time for strength, and for celerity and ease of motion; and it is therefore a complete contrast to that of the unwieldy elephant. In the latter the neck is short, and the bones of the limbs bear all perpendicularly on each other; while in the horse the neck is elongated, and the bones of the limbs describe a series of angles. If we look at the fore limbs we shall see that the scapula or blade-bone recedes from the prominent shoulder-joint, falling back obliquely; its upper apex uniting with the spinous processes of the anterior dorsal vertebræ to form the withers: the shoulder-bone (humerus) retreats, forming an angle at the elbow-joint; the fore arm consists of a single bone, viz., the ulna and radius consolidated into one; this is followed by two rows of carpal or wrist bones (the knees of the horse), amounting to seven in number. This is succeeded by the long canon-bone, which is in reality the metatarsus, with two slender splint-bones attached posteriorly to its upper part. To this succeed the three phalangal bones—first, the upper pastern or pastern-bone; secondly, the lower pastern-



Skeleton of the Horse.

bone or coronet; and, thirdly, the coffin-bone. There are besides a pair of small sesamoid bones behind the fetlock-joint, and a little bone, called the shuttle-bone, behind and partially between the coronet and coffin-bone. With the pastern bones at the fetlock-joint the canon-bone again makes an angle.

The coffin-bone is enclosed in the hoof, which consists of thick, firm, rounded horn, having a certain degree of expansibility; and underneath, forming a sort of sole, is

a part called the frog: it is composed of a cushion of elastic semi-cartilaginous substance, covered with a triangular or arrow-headed elevation of horn. At each step the frog yields beneath the superincumbent pressure, and swelling out laterally expands the heels of the hoof. This frog ought always to touch the ground; it does so naturally; and where bad shoeing prevents it, the crust of the hoof bearing all the weight of the body and the shock of every step as the animal trots along a hard road, inflammation and disease soon supervene; and this the sooner as the coffin-bone is almost cellular, being multitudinously pierced by canals for the passage of blood-vessels.

The posterior limbs are modelled on a similar plan.

Now from the angles which the bones of the limbs make with each other at the joints, the force of every shock as the animal trots or gallops is greatly broken; its very step is light and elastic; and this not only results from the obliquity of the bones in question, but particularly from the yielding spring of the pastern, its elasticity being provided for by a ligament which passes down the back of the canon-bone, and along the pastern to the coffin-bone. Nor is the spring of the elastic frog to be here overlooked—it also contributes an important share to the easy progression of the horse, the action of whose limbs as he moves is or ought to be free, vigorous, and springy. But, alas, how often do we see the knees (carpal bones) distorted with over-toil, and the pasterns rigid and swollen from disease! We may here observe that obliquity of shoulder in the horse is connected with its rapidity. "An upright shoulder," says Sir C. Bell, "is the mark of a stumbling horse; it does not revolve easily to throw forward the foot. When the scapula is oblique, the serratus muscle, which passes from the ribs to its uppermost part, has more power in rolling it."

The vertebral column of the horse consists of seven cervical (neck) vertebræ—eighteen dorsal, six lumbar, two sacral, and seventeen caudal vertebræ: the ribs consist of eight true and ten false pairs. The barrel or body of a horse ought to be capacious, in order that the lungs

may be voluminous and have full play. In the male the withers are higher than in the female, and the neck thicker and more arched; the lumbar vertebræ also are shorter, consequently the flanks are not so extensive, and the barrel is better ribbed up. The height of a horse at the shoulders is equal to his length from the chest to the buttock; so that, taking away the neck and tail, the body and limbs may be drawn within the four lines of a square, touching each line. With respect to the digestive organs, the stomach is simple, the alimentary canal voluminous, the liver large, but destitute of a gall-bladder. In the male there are canine teeth in both jaws; these are either wanting or small in the mare. The formula of the perfect dentition is as follows:—

incisors $\frac{6}{6}$, canines $\frac{1}{1}\ \frac{1}{1}$, molars $\frac{6}{6}\ \frac{6}{6} = 40$. Between the canines and molars there is a vacant space. The incisors in youth have broad edges channelled out into a cavity, which by degrees becomes obliterated. The molars have square crowns, sharply edged with enamel in a crescent form. Many tricks are played by horse-dealers to give apparent age to a colt, and thereby enhance its value; and, after maturity, to give to the teeth that appearance which they would have when the prime of strength and vigour was just attained to. The following observations from the 'Penny Cyclopædia' are very excellent. "The honest mouth of a three-year old horse should be thus formed: the central incisors or nippers are palpably larger than the others, and have the mark on their upper surface evident and well defined. They will, however, be lower than the other teeth. The mark (or depression) in the next pair of nippers will be nearly worn away, and that in the corner nippers will begin to wear. At three years and a half the second nippers will be pushed from their sockets, and their place gradually supplied by a new pair; and at four and a half the corner nippers will be undergoing the same process. Thus, at four years old, the central nippers will be fully grown; the next pair

will be up, but will not have attained their full height; and the corner nippers will be small, with their mark nearly effaced. At five years old the mark will begin to be effaced from the central teeth, the next pair will be fully grown, and the blackness of the mark a little taken off, and the corner pair will be protruding or partly grown.

"At this period, or between the fourth and fifth year, another change will have taken place in the mouth; the tushes (canines) will have begun to appear. There will be two of them in each jaw between the nippers and grinders, considerably nearer to the former than the latter, and particularly so in the lower jaw. The use of these tushes in the domesticated state of the horse is not evident; but they were probably designed as weapons of offence in the wild state of the animal.* Attempts are too frequently made to hasten the appearance of the second and the corner tush, and the gum is often deeply lanced in order to hasten the appearance of the tush.

"At six years old the mark on the central nippers will be diminished if not obliterated. A depression and a mark of rather brown hue may remain, but the deep blackened hole in the centre will no longer be found. The other incisors will also be somewhat worn, and the tush fully developed.

"At seven the mark on the next pair of incisors will have nearly disappeared, and the tush will be rounded at the point and the edges.

"At eight the mark will have disappeared from all the incisor teeth, and the tush will be evidently rounder and blunter.

"At this period another piece of trickery is occasionally practised. The breeder had, till the animal was five years old, been endeavouring to give him an older appearance than his years entitled him to, because in proportion as he approached the period when his powers were most perfectly developed his value increased; but

* We regard these merely as sexual distinctions—the curved tusks of the male babiroussa afford a parallel example.

now he endeavours to conceal the ravages of age. The horse is cast, and with a sharp-pointed steel instrument a little hole is dug on the surface of the corner incisor, to which a red-hot iron is afterwards applied. An indelible black mark is thus left on the tooth. Sometimes the roguery is carried further; the next tooth is slightly touched with the engraver and the cautery; but here the dishonest dealer generally overreaches himself, for the form and general appearance of a six-year-old horse can rarely be given to one who has passed his eighth year. The eighth year having passed, it is difficult to decide on the exact age of the horse. The incisors of the upper jaw are then the best guides. At nine years the mark is said to be worn away from the central teeth; at eleven, from the next pair; and at twelve, from the corner ones. The tush likewise becomes shorter and blunter."

As the dentition of the horse is a subject of great importance, the following tabular view of the progressive changes as they take place will not be unacceptable:—

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| When the horse is foaled | There is a *false* molar, which is soon shed and never replaced; and the first and second *milk* or temporary grinders are already above the gum. |
| In 7 or 8 days | The two central *milk* incisors appear. |
| 1st month | The third *milk* grinder rises. |
| In 6 weeks | The second pair of *milk* incisors are cut. |
| Between 6 and 9 months | The third pair of *milk* incisors are cut. |
| 1st year | The fourth grinder appears. This and the two next are never shed; and therefore belong to the *permanent* set. By this time the two central pairs of *milk* incisors are worn even, and their marks are becoming faint. |
| 18 months | All the *milk* incisors are flat, and their marks are shorter and fainter. |
| Second year | The fifth *permanent* molar or grinder rises, and the *changing* of the teeth commences by the first *milk* grinder being shed, and succeeded by the *permanent* one. |

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| Between $2\frac{1}{2}$ and 3 years | The central pair of *milk* incisors drop out, and the *permanent* ones appear; the sixth *permanent* grinder begins to cut the gum. |
| Between $3\frac{1}{2}$ and 4 years | The second pair of *milk* incisors give place to their successors, and the second *milk* grinder is shed and succeeded. |
| 4th year | The central *permanent* incisors are fully developed; the sixth grinder has risen to a level with the rest; and the canine teeth begin to appear. |
| Between $4\frac{1}{2}$ and 5 years | The third pair of *milk* incisors are shed and succeeded; the central pair are considerably worn, and the second pair begin to exhibit the effects of attrition. The canine teeth are half an inch in length, rounded prominently without; concave within, and grooved on either side. |
| 5th year | The third pair of *permanent* incisors are level with the rest; the canines are much grown; their outer surface is regularly convex, and the lateral grooves have disappeared; their edges are still sharp, and their inner surface concave. The third *permanent* grinder has displaced its predecessor of the milk set; and the sixth is quite developed. |
| 6th year | The marks in the central *permanent* incisors are worn out; yet still a difference of colour remains in their centres. In the second pair the marks have become shorter, broader, and fainter. The tushes are fully grown, and have become completely convex externally, concave internally, and acute at the extremity; the second grinder has risen to its full height, and the whole range of teeth is level. |

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| 7th year | The mark has disappeared in the two central pairs of incisors, and is fast wearing away in the third. The tushes begin to be blunt, and to become less concave inside. |
| 8th year | The marks are all obliterated in the lower incisors, and the tushes have become rounded every way. |
| 9th year | The central incisors in the upper jaw have lost the marks. |
| 10th year | The second pair in the upper jaw have also lost the marks. |
| 11th year | The third pair are in a similar state; the tushes become gradually shorter, blunter, and rounder; the incisors project much more obliquely than formerly, and their section presents rather a short than a long oval. |

In some horses these changes take place rather more rapidly than here stated; in others much more slowly. In some individuals the tushes have been found blunted and rounded at eight years old; in others still sharp and curved at eighteen. The nature of the food which the animals receive very considerably influences them in that respect, the usual dry provender of the stable wearing away the substance of the teeth much quicker than the succulent food of the meadow.

With respect to the senses of the horse, they are most of them considerably acute; and the more so the more the animal exists in a state of nature.

1st, *Feeling*.—The lips in the horse constitute the organs of touch; they are very flexible and muscular, and serve as instruments of prehension, as in the rhinoceros and various other pachydermata. The adroit movements of the lips when employed in search for, or in grasping food, as when collecting into a tuft the grass of the meadow, or the hay of the stable, or when taking hold of any object, by way of examination, are very marked, and add materially to the intelligence and spirit of the animal's physiognomy.

*Vision*.—Although the horse is diurnal in its habits,

the large pupils of the eyes, which are somewhat elongated, are enabled to receive, and the tapetum to reflect, the scattered rays of light in sufficient quantity to render vision tolerably perfect during the darkness of night. From the lateral direction of the eyes, and their distance apart, the range of vision is very extensive; and when the animal with its head down is quietly grazing, it can see objects with facility in every direction around it. Horses are known to take alarm at the sudden view of strange or unusual objects; shying, as it is termed, is said to be the result of a defective sight; perhaps in some cases it is, but we think it mostly depends upon a startlish temperament, which requires to be gently dealt with; the angry use of the whip every time a horse shies, instead of persuasive measures to lead the animal to a quiet examination of the object of sudden fright, will only confirm the habit.

*Hearing.*—The sense of hearing in the horse is extremely perfect. The external ears are admirably formed for receiving the vibratory currents of the atmosphere, and are moveable in all directions independent of each other. The horse is decidedly susceptible of emotion from sounds; we do not mean to say that the sweetest strain of music would make any impression; but the cry of the hounds, the halloo of the hunter, the bugle's blast, and the sound of the trumpet, inspire the horse with ardour.

*Smell.*—The horse possesses a highly delicate sense of smell; all must have observed the horse to test his food by the smell; and it is greatly on the exercise of this sense that the wild horse depends for ascertaining the approach of enemies. In South Africa the horses picketed round the traveller's encampment during the darkness of night discover by the sense of smell the presence of the lion lurking near in ambush, or advancing from his lair, and exhibit signs of great agitation and terror. In the horse the nostrils are large and moveable, and can be expanded and contracted; the nasal cavities are very capacious, and lined with a delicate mucous membrane; and it is through them that the horse breathes. In the

blood-horse, adapted for speed, the nostrils are peculiarly ample.

*Taste.*—The sense of taste is perhaps not in as high a degree of perfection as in some quadrupeds, nevertheless it is sufficiently acute, and harmonizes with the simple vegetable fare on which the animal is destined by nature to subsist. The tongue is smoother than in the ox, and differs also in various anatomical characters. We do not know that wild animals ever take food unfitted for them; but in a domestic condition, which tends to weaken the instinctive powers, this is sometimes the case. The leaves of the yew-tree are highly deleterious to the constitution of the horse; the latter, however, will, it is said, eat them with avidity. On the other hand, there are some vegetables poisonous to other herbivorous quadrupeds which are to the horse innocuous, and among these is the water-hemlock.

The voice of the horse varies from a loud neigh to a gentle whinnying tone; that of the ass is a startling discordant bray. The equidæ or equine race have a peculiar conformation of the larynx, modified in the various species, by means of which the intonations of the voice are produced; but as the structure of the larynx cannot be understood by the general reader without actual inspection, we shall not attempt a description—which may be found in works of comparative anatomy.

The progression of the horse in a state of nature is chiefly confined to two sorts of paces, walking and galloping—probably the trot, but without doubt the canter, is the result of education; gifted with an ample chest and voluminous lungs, the horse swims well and vigorously, striking out with its fore limbs very boldly; but we doubt whether it ever, except under some strong impulse, takes voluntarily to the water,* so as to go out of its depth. We once saw a horse, which was attached between the shafts of an empty cart, and had suddenly got out of its

* In the flooded prairies and pampas, as we have said, the horses are obliged to swim; and when maddened with long thirst they will rush into the water; but these cases are not proofs of the partiality of the horse for the bath.

depth in an overflooded river, swim, even thus encumbered, with great address, till extricated from its perilous situation. We are not sure, however, that many horses could cross a foaming river, carrying a knight in heavy mail, themselves, moreover, being *barded*, or accoutred with defensive armour, as Sir Walter Scott describes the charger of Sir William of Deloraine to have done :—

" At the first plunge the horse sunk low,
And the water broke over the saddle bow ;
Above the foaming tide I ween,
But half the charger's neck was seen,
For he was barded from counter to tail ;
And the rider was armed complete in mail.
Never heavier man and horse
Stemm'd a midnight torrent's force :
The warrior's very plume, I say,
Was daggled by the dashing spray ;
Yet, through good heart and our Lady's grace,
At length he gained the landing-place."

The horse is delicate in his choice of food, and he prefers the soft water of the running stream or pond to hard water from the well, especially if the latter be very cold. Instances have occurred in which hard water, cold from the well, taken by a heated horse, has produced spasm and death. Most horses will drink ale or porter with relish, and are evidently refreshed and exhilarated by their draught.

In its natural state, the horse, as already observed, is gregarious, and in domestication it exhibits the same propensity to associate with its fellows, and is evidently more comfortable when associated with others than when kept singly. In the field they herd together, form friendships, gambol with each other, rush to the hedge to gaze on a strange horse in the road or an adjoining field, and salute him with repeated neighings. They perform for each other little acts of service, and may be often observed quietly nibbling each other's hide either for amusement or in order to relieve irritation of the skin.

So decided is the disposition of the horse to contract

friendships, that when others of its species are not accessible, it will attach itself to animals of a different species. Instances of mutual attachment between dogs and horses are far from being uncommon, and one of the most celebrated racers of our island, Eclipse, contracted a close friendship with a sheep. With man himself, whenever he condescends to permit it, the horse will become familiar and friendly, and demonstrate towards him every mark of submissive attachment. There are, it is true, horses of a sullen obstinate temper, which the kindest treatment will not conciliate, but these are exceptions to the general rule; many horses, we may add, have their temper spoiled by injudicious or wanton severity, in which case it is difficult to reclaim them; but almost universally where kindness is shown to the horse, his attachment will be secured. In the tents of the nomadic Bedoueens the mares with their foals, and the masters with their families and children, dwell all together; intermingled they sleep together; the master caresses his favourite mare, the children and the foal play together, and grow up together, and the utmost confidence and familiarity subsist between them. The Bedoueen treats his steed as one of his family, and the feeling is reciprocal. Col. Hamilton Smith, whom we honour for his noble feeling of humanity, informs us that the mutual attachment known to subsist between the northern Germans and their horses may be ascribed in a great measure to the structure of the farm-houses, where the heads of cattle and horses are turned towards the threshing-floor, at the top of which the family usually resides, and where the kitchen hearth is placed. From being able to see all that passes, the animals become familiarised and conversant with the actions of the inmates; and these, in turn, having their domestic animals constantly under their eyes, learn to consider and treat them as companions, and not as brutes to be coerced only by blows. Would that such feelings were characteristic of the peasantry of our own island.

The quiet and peaceful companionship of horses with each other does not obtain among the stallions. In a

wild state they have furious contests for the sultanship of the troop; and in a domestic condition stallions, if at liberty, will fight desperately with each other, realizing Shakspere's description of Duncan's horses, so finely embodied by one of our modern sculptors. On the continent contests of this kind more frequently occur than in our island, for well-known reasons—but racers on the course have been known to seize and lacerate each other. The war-horses of the ancients, animated by the spirit of hostility which incited their respective riders to the combat, attacked each other, their natural enmity being encouraged and stimulated. Knowledge of time and memory are certainly possessed by the horse, as a thousand instances will convince. A horse accustomed to commence or leave off work at a certain time of day well knows the respective periods. Who that has travelled by a stage-coach (a rare vehicle in the present day) has not seen the relay of horses, at the changing place, ready to take their turn, and waiting evidently aware that the time for them to commence their routine of duty had arrived? Well does the farmer's team know the hour of release from labour. A horse that has once travelled a road knows it again; he knows the houses by the way side at which he has been accustomed to stop, and will, undirected, make up to the door. Taken to a distance from home, the horse will return, and even find its way during the darkest night, with various obstacles to overcome. Often has the appearance of the horse at the gate, without its rider, been the signal of the mischance or death from violence or accident of its master while travelling homeward.

The following original anecdote was sent to the 'Penny Magazine,' illustrating the love of the horse for its "own old home," and the resolution and perseverance it displays in effecting its return:—"A short distance below Fort Erie, and about a mile from where the river Niagara escapes over a barrier of rock from the depths of Lake Erie, a ferry has long been established across the broad and there exceedingly rapid river, the distance from shore to shore being a little over one-third of a

mile. On the Canada side of the river is the small village of Waterloo, and opposite thereto on the United States side is the large village of Blackrock, distant from the young and flourishing city of Buffalo two miles. In completing the Erie Canal a pier or dam was erected up and down the river, and opposite to Blackrock, at no great distance from the shore, for the purpose of raising the waters of the Niagara to such a height that they might be made to supply an adjoining section of the Erie Canal. This pier was, and is, a great obstruction to the ferry-boats; for previous to its erection passengers embarked from *terra firma*, on one side of the river, and were landed without any difficulty on the other; but after this dam was constructed it became necessary to employ two sets of boats, one to navigate the river, the other the basin, so that all the passengers as well as goods and luggage had to be landed upon this narrow wall and reshipped. Shortly after the erection of the pier-dam a boat propelled by horses was established between this pier and the Canada shore. The horses moved upon a circular platform which consequently was put in motion, to which other machinery was connected that acted upon paddle-wheels attached to the sides of the boat. The boat belonged to persons connected with the ferry on the American side of the river; but, owing to the barrier formed by the pier, the horses employed on the boat were stabled at night in the village of Waterloo. I well recollect the first day this boat began to ply; for the introduction of a boat of that description in those days and in such a situation was considered as an event of some magnitude. The two horses (for the boat had but two) worked admirably, considering the very few lessons they had had previous to their introduction upon the main river. One of the horses employed on the new ferry-boat had once been a dapple grey, but at the period I am speaking of he had become white. He was still hale and hearty, for he had a kind and indulgent master. The first evening after the horses had been a short time in the stable to which they were strangers, they were brought for the purpose of being watered at the river,

the common custom at the place. The attendant was mounted upon the bay horse—the white one was known to be so gentle and docile that he was allowed to drink where he pleased. I happened to be standing close by in company with my friend W——n, the ferry contractor on the Canada side, and had thus an opportunity of witnessing the whole proceeding of old Grizzle, the name that the white horse still went by. The moment he got round the corner of the building, so as to have a view of his home on the opposite side, he stopped and gazed intently. He then advanced to the brink of the river, when he again stopped and looked earnestly across for a short time, then waded into the water until it had reached his chest, drank a little, lifted his head, and, with his lips closed and his eyes fixed upon some object on the farther shore, remained for a short time perfectly motionless. Apparently having made up his mind to the task, he waded farther into the river until the water reached his ribs, when off he shot into the deep water without hesitation. The current being so strong and rapid, the river boiling and turmoiling over a rocky bed, at the rate of six miles the hour, it was impossible for the courageous and attached animal to keep a direct course across, although he breasted the waves heroically and swam with remarkable vigour. Had he been able to steer his way directly across, the pier-wall would have proved an insurmountable barrier. As it was, the current forced him down to below where the lower extremity of this long pier abuts upon an island, the shore of which being low and shelving, he was enabled to effect a landing with comparative ease. Having gained *terra firma*, he shook the water from his dripping flanks, but he did not halt above a few minutes, when he plunged into the basin and soon regained his native shore. The distance from where Grizzle took the water to where he effected a landing on the island was about seven hundred yards; but the efforts made to swim directly across, against the powerful current, must have rendered the undertaking a much more laborious one. At the commencement of his voyage his arched neck

and withers were above the surface, but before he reached the island his head only was visible. He reached his own stable door—that home for which he had risked so much—to the no small astonishment of his owner. This unexpected visit made a favourable impression on his master, for he was heard to make a vow that if old Grizzle performed the feat a second time, for the future he should remain on his own side of the river, and never be sent to the mill again. Grizzle was sent back to work the boat the following day, but he embraced the first opportunity that occurred of escaping, and swam back the way he had done before. His owner, not being a person to break the promise he had once made, never afterwards dispossessed him of the stall he had long been accustomed to, but treated him with marked kindness and attention."

A curious circumstance came under the personal notice of Colonel Hamilton Smith, at once proving both the memory and attachment of the horse. The colonel had a charger in his possession for two years, which he left with the army, but which was brought back and sold in London. About three years afterwards the colonel chanced to travel up to town, and at a relay, on getting out of the mail, the off-wheel horse attracted his attention; on going near to examine it with more care he found the animal recognizing him, and testifying its satisfaction by rubbing its head against him, and making every moment a little stamp with its fore feet, to the surprise of the coachman, who asked if the horse was not an old acquaintance. It was,—it was his own old charger.

A lady, remarkable for benevolence to the brute creation, observed from her garden-gate one day a miserable horse, with the shoulder raw and bleeding, attempting to graze on an open spot adjacent: having, by means of some bread, coaxed the poor animal to the gate, she then managed, with some assistance, to cover the wound with adhesive plaster spread on a piece of soft leather. The man to whom the animal belonged (one of those ignorant and careless beings who are indifferent to the sufferings

of any but themselves) shortly afterwards led the horse away. The next day, however, the horse made his appearance again at the gate, over which he put his head and gently neighed. On looking at him it was found that the plaster was removed, either by the animal's master or by the rubbing of the ill-made collar in which he worked. The plaster was renewed. The third day he appeared again, requiring the same attention, which he solicited in a similar manner. After this the plaster was allowed to remain, and the horse recovered; but ever after, whenever it saw its benefactress, it would immediately approach her, and by voice and action testify its sense of her kindness and notice. This anecdote, for the truth of which we can personally testify, proves how sensible the horse is of humane treatment, and how grateful for benefits bestowed. Considerate treatment and every care are due to an animal from whose services man derives such important benefits; but too often does man forget that he has a duty to perform, not only towards his fellow-man, but towards those domestic animals which Providence has intrusted to him for his welfare.

We know nothing that shows the docility of the horse more than the feats it is taught to perform in the "spectacles" of the modern circus. To lie down and rise at command, to perform various tricks at given signals, to feign death, to take its part as an actor in mimic combats, to endure with patience the bizarre actions of the laugh-exciting buffoon, are among the lessons which it is taught, and which it admirably executes. In docility there is no comparison between the horse and the ass; for though with kind treatment the latter is more tractable than is generally supposed, still its disposition is not so pliable, nor its tractability so complete, as that of the horse; and we doubt whether it could be brought to supply the place of that animal in the exhibitions alluded to. It has not the mercurial fire and mettle of the horse, but is more staid and sober—at least in our climate: indeed from old times its stubbornness of disposition has been noted, in contrast with the generous temper of the

horse; though it must be confessed that among horses there are many exceptions to the rule, and occasionally we meet with animals exceedingly vicious and obstinate; but in most cases they have been spoiled when young by improper severity.

A curious instance of the cunning and memory displayed by the horse is exemplified in the following anecdote from the 'Plain Englishman.' The late General Pater, of the East India service, was a remarkably fat man: while stationed at Madras he purchased a charger, which after a short trial all at once betook itself to a trick of lying down whenever the general prepared to get upon his back. Every expedient was tried without success to cure him of the trick; and the laugh was so much indulged against the general's corpulency that he found it convenient to dispose of his horse to a young officer quitting the settlement for a distant station up the country. Upwards of two years had subsequently elapsed when, in the execution of his official duties, General Pater left Madras to inspect one of the frontier cantonments. He travelled, as is the usual custom in India, in his palankeen (a covered couch, carried on men's shoulders). The morning after his arrival at the station the troops were drawn out; and as he had brought no horses, it was proper to provide for his being suitably mounted, though it was not easy to find a charger equal to his weight. At length an officer resigned to him a powerful horse for the occasion, which was brought out duly caparisoned in front of the line. The general came forth from his tent and proceeded to mount, but the instant the horse saw him advance he flung himself flat upon the sand, and neither blows nor entreaties could induce him to rise. It was the general's old charger, who from the moment of quitting his service had never once practised the artifice until this second meeting. The general, who was an exceedingly good-humoured man, joined heartily in the universal shout that ran through the whole line on witnessing this ludicrous affair.

The following instance of the memory and caution of

a horse which narrowly escaped being killed by the fall of a tree is not uninteresting. "During my residence," says the writer, "on the head-waters of the Susquehanna, I owned a small American horse of the name of Charlie, that was remarkable for his attachment to my own person, as well as for his general good qualities. He was a great favourite with all the family; and being a favourite he was frequently indulged with less work and more to eat than any of the other horses on the farm. At a short distance from the dwelling-house was a small but luxuriant pasture, where during the summer Charlie was often permitted to graze. When this pasture had been originally reclaimed from its wild-forest state, about ten years previous to the period of which I am speaking, four or five large trees, of the sugar-maple species, had been left standing when the rest were cut down, and means had afterwards been found to prevent their being scorched by the fire at the time the rest of the timber had been consumed. Though remarkably fine trees of their kind, they were however no great ornament, their stems being long and bare, their heads small, and by no means full of leaves—the case generally with trees that have grown in close contact with each other in the American forests: but if they were no ornament, they might serve as shade-trees. Beneath one of these trees Charlie used to seek shelter, as well from the heat of the meridian sun as from the severe thunder-gusts that occasionally ravage that part of the country. On an occasion of this sort Charlie had taken his stand close to his favourite tree, his tail actually pressing against it, his head and body in an exact line with the wind, apparently understanding the most advantageous position to escape the violence of the storm, and quite at home, as it were, for he had stood in the same place some scores of times. The storm came on, and raged with such violence that the tree under which the horse had sought shelter was literally torn up by the roots. I happened to be standing at a window, from which I witnessed the whole scene. The moment Charlie heard the roots giving way behind him, that is on the contrary side of

the tree from where he stood, and probably feeling the uprooted tree pressing against his tail, he sprang forward and barely cleared the ground upon which at the next moment the top of the tree fell with such a force that the crash was tremendous, for every limb and branch were actually riven asunder. I have many a time seen horses alarmed, nay, exceedingly frightened, but never in my life did I witness anything of the sort that bore the slightest comparison to Charlie's extreme terror; and yet Charlie on ordinary occasions was by no means a coward. He galloped, he reared his mane and tossed his head, he stopped short and snorted wildly, then darted off at the top of his speed in a contrary direction, and then as suddenly stopped and set off in another, until long after the storm had considerably abated; and it was not until the lapse of some hours that he ventured to reconnoitre—but that at a considerable distance—the scene of his narrow escape. For that day at least his appetite was completely spoiled; for he never offered to stoop his head to the ground while daylight continued. The next day his apprehension seemed somewhat abated; but his curiosity had been excited to such a pitch that he kept pacing from place to place, never failing to halt as he passed within a moderate distance of the prostrate tree, gazing thereat in utter bewilderment, as if wholly unable to comprehend the scene he had witnessed the preceding day. After this occurrence took place I kept this favourite horse several years, and during the summer months he usually enjoyed the benefit of his old pasture; but it was quite clear he never forgot on any occasion the narrow escape he had had; for neither the burning rays of the noontide summer sun, nor the furious raging of the thunder-storm, could compel Charlie to seek shelter under one of the trees that still remained standing in his small pasture."

Some horses are naturally far more timid than others, and take alarm at objects which in others produce no fear. We have seen horses dreadfully agitated during a severe thunder-storm; while, on the contrary, we have observed some apparently indifferent to the flashes and

roar. Some horses will remain unmoved during the raging battle, in the midst of the clash of glittering arms and the din of the cannon, while others tremble with apprehension, and even groan with terror. In cases where horses are in stables on fire, fear appears to paralyze their powers, so that it is very difficult to rescue them, unless they be first completely blindfolded, which should always be promptly done.

Occasionally horses exhibit a decided and unaccountable dislike towards different objects, several curious instances of which are related by Professor Rodet, in the 'Veterinarian:'—"In 1806, during the campaign of Austerlitz, a Piedmontese officer possessed a beautiful and in other respects a most serviceable mare, but which one peculiarity rendered at times exceedingly dangerous for the saddle: she had a decided aversion to paper, which she immediately recognized the moment she saw it, and even in the dark, if one or two leaves were rubbed together. The effect produced by the sight or sound of it was so prompt and so violent, that in many cases she unhorsed her rider; and in one case, his foot being entangled in the stirrup, she dragged him a considerable way over a stony road. In other respects this mare had not the slightest fear of objects that would terrify most horses. She regarded not the music of the band, the whistling of the balls, the roaring of the cannon, the fire of the bivouacs, or the glittering of arms. The confusion and noise of an engagement made no impression upon her; the sight of no other white object affected her; no other sound was regarded; the view or the rustling of paper alone roused her to madness. All possible means were employed to cure her of this extraordinary aberration, but without success; and her master was at length compelled to sell her, as his life was in continual danger."

"A mare belonged to the Guard-Royal from 1816 to 1821. She was perfectly manageable, and betrayed no antipathy to the human being nor to other animals, nor to horses, except they were of a light grey colour; but the moment she saw a grey horse she rushed upon it

and attacked it with the greatest fury. It was the same at all times and everywhere. She was all that could be wished on the parade, on the route, in action, and in the stable; but such was her hatred towards grey or white horses, that it was dangerous to place them in the same stable with her, at whatever distance. If she once caught a glimpse of one, whether horse or mare, she rested not until she had thrown her rider, or broken her halter, and then she rushed on it with the greatest fury and bit it in a thousand places. She generally, however, seized the animal by the head or throat, and held it so fast, that she would suffocate it if it were not promptly released from her bite. As she grew old (for she was eighteen years old in 1821) this mania was not quite removed, but it was somewhat weakened. No other body of a white colour appeared to make the least impression on her."

"A mare belonging to the fifth squadron of hussars feared, on the contrary, all white inanimate objects, such as white mantles or coats, even the sleeves of shirts and chemises too much displayed, and particularly white plumes. When any of these white bodies, and especially in motion, were suddenly perceived, if they were of any magnitude and their motion was rapid, she was in a dreadful fright, and strove to escape; but if they were of no great size, and moved more gently, she rushed furiously upon them, struck at them with her fore feet, and endeavoured to tear them with her teeth. No other colours produced the slightest effect upon her, nor did the appearance, however sudden, of white horses, or dogs of the same colour; but if a white plume waved, or a white sheet of paper floated by her, her fear or rage was ungovernable."

Professor Rodet regards these as cases of true monomania. It is remarkable that in each instance the subject of this singular frenzy was a mare.

We have often observed the care and caution of horses accustomed to rugged and hilly roads, in traversing the difficult and steep descents, with a heavy pressure on the shoulders. In Derbyshire, for example, we have repeat-

eully seen a single stout horse bring a heavy cart-load of coal down the long and dreadfully steep hill which descends into Buxton, on the old Macclesfield road, and that without any aid or directions from the carter—a feat which a cart-horse accustomed only to the smooth level roads around the metropolis would not perhaps be able to accomplish.

Lord Brougham, in his 'Dissertations' on subjects of science, speaking of the intelligence of animals, says that he knew a pony that used both to open the latch of the stable-door, and also raise the lid of the corn-chest; and he notices the instance of a horse opening the wicket-gate of a field by pressing down the upright bar, as a man would do,—actions, he observes, which the animals must have learnt from observation, as it is very unlikely that they were taught. We have known horses act precisely in the same manner; and one in particular, a Welsh pony, which would disengage itself from the head-stall and raise the latch of the stable-door, in order to escape into the fields, and rejoin its companions. Other domestic animals will perform the same feat. A cat in our possession was accustomed to leap up and open the latch of a door, when she wished to leave the house. It has been observed that in Alpine countries horses accustomed to the difficult passes of the mountains seldom make a false step, or trust themselves on a spot where the footing is insecure. In the same way horses accustomed to a marshy country may be safely trusted crossing bogs and roads, as they rarely venture upon any spot where they may be in danger of being mired. Sir Walter Scott says of Watt Tinlinn, in the 'Lay of the Last Minstrel:'—

> "He led a small and shaggy nag,
> That through a bog from hag to hag *
> Could bound like any Bilhope stag."

The fact is, that the horse, like the dog, accommodates itself to the circumstances in which it is placed, and ac-

* Hag, the broken tufted ground in a bog where firm footing may be expected.

quires therefrom habits and feelings in accordance with the mode of life and all the multitudinous influences to which it is subjected. Of all our domestic quadrupeds, its physical and moral nature is only less pliable than that of the dog. In stature there is almost as great a variety among domestic horses as among dogs. They vary from three feet to seventeen or even eighteen hands in height, and instances of even greater stature have occurred. Mr. Bell, in his excellent work on 'British Quadrupeds,' gives us a short account of a very small pony which came under his notice. He says:—"I was some time since passing rather late in the evening through one of the streets in the immediate neighbourhood of London, and observed two men walking with a beautiful little pony trotting by their side, without either bridle or halter. Presently one of the men, who seemed on the best possible terms with his little steed, passed his arm round its body, and, lifting it with ease from the ground, carried it for some distance; then, setting it down, he threw one leg over its back, and half rode half walked, with his feet touching the ground on either side. After a time he again carried the horse for a short distance, and at length, coming to a large gin-shop, carried it up the steps, and disappeared with it at the door. Whether he made it partake of his cheer we know not." In our memorandum-book we have the measurements of a very small pony which we examined at the museum of the Zoological Society, then in Bruton-street, June 1, 1832. Height at the shoulder, thirty-four inches; length from between the ears to the insertion of the tail, following the curves of the neck and back, four feet two inches. It is very probable that it was the same pony seen by Mr. Bell. It was docile and gentle, but lively and in good health.

In the museum of the Zoological Society is the specimen of a most minute pony, presented by his Majesty George IV. It was, however, evidently unhealthy, and died before attaining its full stature.

Of the natural age to which the wild horse attains we have no information. In a domestic condition the horse lives to about thirty, sometimes even to forty years; but

from over-work and ill-usage few survive the age of sixteen or eighteen; and numbers are destroyed even before they have numbered ten or twelve years.

The mare is capable of breeding between two and three years old, but is not really mature till four. The period of gestation averages eleven months; or, according to Sir E. Home, 311 days; but in one instance out of a hundred and two he found the time extended to 394 days; giving a latitude of 83 days. The young of both sexes, after birth, take the name of foal; but as distinguishing names the male is termed a colt, the female a filly,—and these terms they bear to the age of about four years and a half, when the appearance of the corner pair of incisors proclaims, in the language of the turf, that the horse shall no longer be termed a colt, nor the mare a filly. The mare has two teats.

In our history of the Dog we stated that the male parent of the first litter produced an influence upon the external form and characters of succeeding litters by other fathers. We believe this mysterious law to obtain throughout the mammalia more extensively than has been suspected. That it does so in the instance of the horse has been proved to demonstration. Mr. Bell well observes, that "the importance of the influence of the sire in breeding horses is in no point more clearly proved than by the fact that the progeny of the most celebrated (race) horses have generally sustained the reputation of their sires: thus the descendants of Eclipse numbered no less than three hundred and sixty-four winners, and those of Matcher, Highflier, and other celebrated horses have partaken of the same inherited excellence." But the remarkable and demonstrative proof to which we would here advert, is based upon the following circumstances, detailed in letters of the late Earl of Morton, and published in the 'Philosophical Transactions' for the year 1821. It would appear that the Earl of Morton was anxious to procure a mule breed between the horse and the quagga, and to this end made selection of a splendid mare, of seven-eighths of pure Arab blood, and a fine male quagga. The produce was a female hybrid, or

mule, bearing in form and striped markings decided tracts of her quagga size: the head was longer and larger, and the neck shorter and less arched, than in the blood-horse; the form of the croup was more asinine, and the tail scantily furnished; the forehead, neck, and withers, and also the arm and hock, had striped markings; a black line ran along the back, and the mane was thin and wiry: the hybrid characters were in fact evident. The next offspring of this mare was a filly, by a black Arabian horse. The filly was bay, with a short, stiff, upright mane, like that of the quagga: the forehead, neck, shoulders, and limbs had the decided stripes of the quagga, and a black line ran down the spine. The tail was full, and in other respects the form equine: the blood was nineteen-twentieths thorough Arab, yet with quagga markings and mane. Again, by the same black Arab, this mare had a colt of a bay colour with the same markings, but the mane, instead of being short, was long, but yet so stiff and wiry as to arch on one side without touching the sides of the neck. Both the colt and the filly were elegant spirited animals, fleet and vigorous. The portraits of the hybrid and the filly and colt are deposited in the Royal College of Surgeons.

Colonel Hamilton Smith, in his remarks on the facts above detailed, hazards an opinion which has sometimes crossed our minds, viz., that the quagga is itself of hybrid origin; and his argument is, that both the mule and the true horses afterwards produced exhibited indications of a more decided system of variegated painting than we see on the quagga, with superadded cross-bars on the joints, which are wanting in that animal; from which he infers that from the "disturbing action of the regular filiation" of the quaggy progeny, the indications of a remote descent from a more thoroughly hippotigrine stock, previously latent, broke out with renewed distinctness. This, however, is a theory on which we would not lay too much stress; and which many naturalists would reject as untenable. It is, nevertheless, worth consideration.

We have said that the horse is herbivorous; but like some other herbivorous animals, the horse, under certain

circumstances, will take animal food. In some parts of Arabia flesh raw as well as boiled is given to the horses, with fragments of their owner's meals; and an inhabitant of Hamah assured Burckhardt that "he had often given his horses roasted meat, before the commencement of a fatiguing journey, that they might be the better able to endure it; and the same person, fearing lest the governor should take from him his favourite horse, fed him for a fortnight exclusively upon roasted pork, which so excited its spirit and mettle that it became absolutely unmanageable, and no longer an object of desire to the governor."

We have heard of the efficacy of a beef-steak tied round the bit, and placed in the mouth of a horse about to undergo a trial of speed and endurance; a plan which the celebrated Turpin is said to have adopted with his black mare, on which he rode from London to York in an almost incredible short space of time.

In the 'Edinburgh Journal of Natural History,' we find the following passage:—"We are assured by Mr. Youatt that in Auvergne fat soups are given to cattle, especially when sick or enfeebled, for the purpose of invigorating them. The same practice is observed in some parts of North America, where the country people mix, in winter, fat broth with the vegetables given to their cattle, in order to render them more capable of resisting the severity of the weather. These broths have been long considered efficacious by the veterinary practitioners of our own country in restoring horses which have been enfeebled through long illness. It is said by Peall to be a common practice in some parts of India to mix animal substances with the grain given to feeble horses, and to boil the mixture into a sort of paste, which soon brings them into good condition, and restores their vigour. Pallas tells us that the Russian boors make use of the dried flesh of the Hamster reduced to powder, and mixed with oats; and that this occasions their horses to acquire a sudden and extraordinary degree of *embonpoint*. Anderson relates, in his 'History of Iceland,' that the inhabitants feed their horses with dried fishes when the cold is very intense, and that these animals are extremely

vigorous, though small. We also know that in the Feroe Islands, the Orkneys, the Western Islands, and in Norway, where the climate is still very cold, this practice is also adopted; and it is not uncommon in some very warm countries, as in the kingdom of Maskat in Arabia Felix, near the Straits of Ormuz, one of the most fertile parts of Arabia, fish and other animal substances are there given to the horses in the cold season, as well as in times of scarcity."

It is a remarkable fact that the reindeer in Lapland devours the lemming, a small migratory rodent, which often swarms in myriads in the north; and, according to Franklin, the North American reindeer are accustomed to gnaw their fallen antlers, and to devour mice. May not a portion of animal diet in the ice-bound regions approximating to the Polar circle be essential as a stimulus to the system of the moss-feeding reindeer? We know how essential oily animal food is to the natives, and how bountifully Providence has supplied it.

We have already described the hoofs of the solidungulous horse, which, in the present day, we are accustomed to see defended by iron shoes—a practice now almost universal, but which does not appear to have been followed in remote antiquity. In the vast plains and sandy deserts of Central Asia the undefended hoof would be found sufficiently firm and hard for the nature of the ground. To this fact Isaiah seems to allude in the following passage—"Their horses' hoofs shall be counted like flint," ch. v., v. 28; and Jeremiah also follows the same idea, when he refers to the "noise of the stamping of the hoofs of his strong horses," ch. xlvii., v. 3.

A note by the learned editor of the 'Pictorial Bible' in reference to the passage in Isaiah, contains the following commentary—"The allusion to the hardness of the horses' hoofs probably arises from the fact that the ancients did not shoe their horses by nailing iron-plates to the bottom of the hoof. There were, indeed, shoes of leather, gold, and silver; but these encased the whole hoof, and were bound or tied on, being only used on particular occasions, and very rarely. Hence the hardness of the hoofs

was a very important consideration; and Xenophon lays much stress on this point, observing that the good hoof is hard, hollow, and, when struck on the ground, sounds like a cymbal. He also suggests means by which the hoofs may be hardened. The necessity of such hard hoofs in war-horses did not escape Homer, who continually applies to them the epithet 'brazen-hoofed.'"

Among the Romans the practice of shoeing horses does not seem to have been in vogue till the time of Julius Cæsar. Nero is said to have had his horses shod with plates of silver—and his second wife, the profligate Poppæa, her mules shod with gold. These perhaps encased the hoof.—Yet Suetonius in his life of Caligula, notices iron horse-shoes fastened with nails.

The bit and bridle are of great antiquity (see Psalm xxxii., v. 9); nevertheless, some nations of antiquity appear neither to have used them, nor yet the saddle or stirrups. The Numidians, we learn, always rode without a saddle, and sometimes without bridles, though we confess we are at a loss to know how they could have guided their horses in the mêlée of battle.

With regard to the stirrup, it was not known to the ancient Greeks and Romans; nor, if we are to judge from bas-reliefs, to the Persians, Medes, Dacians, &c.; indeed it is asserted by some not to have been adopted previously to the eleventh century: but Colonel H. Smith considers it to have been in use in Saxon England as early as the ninth, and attributes its invention to the Spanish Saracens. Its adoption was undoubtedly very gradual; nor is its use now perhaps universal.

The difficulty of a man in armour mounting his steed without stirrups may be easily conceived, and various awkward plans were adopted to remedy the inconvenience. It is related that Sapor, King of Persia, forced the Roman Emperor Valerian, his captive, to kneel and serve as a stepping-stone when he mounted his horse; and this mode of getting on horseback prevailed among the Oriental potentates.

## CHAPTER VI.

### ON THE PRINCIPAL MODERN BREEDS OF THE HORSE.

Spread in modern days over the globe, those regions excepted where want of food prohibits its introduction (the dreary realms of the Arctic Circle, for example), the horse presents us with great variations in stature, contour, and colour. We have the ponderous, gigantic cart-horse, the powerful hunter, the light sinewy racer, and the dwarf pony—all being characterized by their own points of beauty and excellence. With respect to colours we may enumerate black, chesnut, brown, pure bay, sorrel, dun with the black dorsal strip, grey, white, and piebald. In the black, bay, and grey breeds, circular dapples of a darker tint are usually more or less conspicuous; in black horses, still blacker circles are often easily distinguishable; and in grey horses every one must have noticed the disposition of the mottled markings. In the dun with the dorsal stripe, commonly called the eel-back dun, these circular dapples are never to be observed; and from this circumstance, and a tendency towards stripes on the limbs, we might refer it to a distinct origin; or to a stock influenced by some ancient cross with one of the wild asses, of which the characters every now and then manifest themselves in the mixed descendants; but against this latter idea the peculiar length and fullness of the mane and tail militates, while, on the other hand, few naturalists will be disposed to allow of more than one origin for the domestic races of the horse, notwithstanding their difference. It is a subject on which we have no positive data, and it is useless to theorize in the midst of uncertainty. Varieties of colour may prove the existence of long established breeds, but are no test of distinct specific origins.

*The Arabian Horse.*—As the noblest among the noble—as that which has beyond any other breed contributed to the perfection of the English racer—the horse of the Bedoueen is that to which we first turn our attention.

We think we have sufficiently demonstrated that in early antiquity the nomades of Arabia did not possess the horse—their riches were camels, oxen, asses, sheep, and goats. Esau was a hunter; we may to this list therefore add the dog, which would be necessary for guarding the flocks and herds from the attacks of ferocious animals. Whence did Arabia then obtain its horses? Are they descended from the stock of Egypt, with which Solomon, disregarding the Mosaic injunction, replenished his stables—or were they introduced by the Scythic tribes from High Asia, who at various times forced their way with horses and chariots, giving origin to the modern coursers of the desert? Perhaps from various sources—from Parthia, Media, Persia, and Egypt; whence also Numidia, Nubia, and Northern Africa generally received their splendid steeds. It is true that in Arabia the horse has never superseded the camel; and some have even asserted that at the date of the Hejira (the flight of Mohammed to Medina, A.D. 622) but few horses existed in that country: an assertion in some measure countenanced by Burckhardt, who affirms that he is not by any means under the true estimate when he calculates the number of horses in Arabia, as bounded by Syria and the Euphrates, at fifty thousand—a number much inferior to what the same extent of ground would furnish in any other part of Asia or Europe. We believe that camels are exclusively used by the Arabs along the borders of the Red Sea; whereas the contrary obtains among the Bedoueen marauders. In the Arabian romance of Antar (translated by Mr. Terrick Hamilton in 1819), who was a real personage, and lived about the beginning of the sixth century, we have full proof of the equestrian habits of the wild Arabs in the vivid oriental pictures of horses and battles of horsemen which that work contains.* Let it also be

* See 'Penny Magazine' for 1837, p. 55, for a description of this singular romance.

remembered that, after the destruction of Jerusalem, the Jews retired "in great numbers to Arabia, where, owing to the loose connexion and the jealousy of the aboriginal tribes, they gained considerable power. Many of them adopted the fierce manners of the desert, chose a wandering life, connected with all its dangers and adventurous strife; and a poem composed by a Jewish Bedoueen has been preserved in the Hammâsa, and breathes the true spirit of Arabian chivalry." The Bedoueen adventurers were horsemen; they were horsemen before the time of Mohammed, and under his banner they swept like a torrent over the adjacent nations, making converts by the spear and sword. In proof of the early possession of horses by the Arabs, Colonel Hamilton Smith says—"We appeal to Hirtius (de Bello Alex.), where Cæsar is recorded to have sent to an Arabian, Regulus, then styled Malchus, that is Melek, for a reinforcement of cavalry: later, but still before the Hejira, we hear of a war of forty years' duration, between the tribes of Abs and Dobian, which arose out of a dispute on account of a race between two horses named Dahes and Ghabra."

The Arabs of the present day have three breeds of horses, viz., the Attechi, the Kadîshi, and the Koheili or Kohlâni. The two former are of no value, but are used for servile drudgery. The Kohlâni is the noble race, divided into five renowned stocks, which are again divided into numerous ramifications, and are asserted by some Arabs to be derived from five favourite and splendid mares of the stud of Mohammed. There are, however, Arabs who, on the contrary, contend for other derivations, and carry up the genealogy of some to the days of Solomon. Dissentient voices, again, from this theory refer the choicest breeds to the mares and stallions of ancient nomadic chiefs, whose names, with those of their horses, are still in the mouths of the Arabs. Be this as it may, the genealogy of many of the mares of noblest blood is traced back by well-attested documents for several hundred years.

It must be remembered that Arabs ride only mares; and from this circumstance, connected with the affection

which subsists between the rider and his steed, which is regarded as one of his family, together with the pride he takes in her qualities and long line of noble ancestry, it is very difficult to obtain one by purchase: indeed, to part with a mare to a stranger is deemed a crime. Stallions are far more easily procured, and sell at a lower rate, though of the highest strain. Of these many are purchased by the Turks, and many are sold at Basrah and Baghdad for the Indian market.

The price of an Arab horse in the years 1810—1816, according to Burckhardt, varied from 10*l.* to 120*l.*; but since then the prices have risen.* The Arabs themselves for a celebrated mare, not to be sold to strangers, often give as much as 200*l.* The sum of 500*l.* has even been given, which, considering the value of money in Arabia and Syria, is enormous. Burckhardt mentions a sheikh who had a mare of great celebrity, for the half share in the ownership of which he paid 400*l.*†

* This statement does not agree with that of Colonel H. Smith, who informs us that in the beginning of the last century, the stallions of the following studs were of far higher value. Those of the *Oel-Nagdi*, reared in the vicinity of Bussora, are valued at 8000 piastres—a mare of this stud sold at Acre for 15,000 piastres. The piastre is worth about two francs, or twenty-pence. The *Guelfe*, from Yemen, about 4000 piastres; the *Saklawye*, bred in the Eastern Desert, the same. The *Oel-Mefki*, of the district of Damascus, 3000 piastres. The *Oel-Sabi* about 2000 piastres. The *Oel-Tredi*, 900 or 1000 piastres. Besides these celebrated studs, there are the *Monaki* and *Shaduhi* of Yemen, the breeds of the Roswallas, of the tribe of Benilam, and the Moualis, south of Palmyra, &c., of high renown. Besides these there are the renowned Nedschdis, bred in the province of that name, and subdivided into about five great studs, all of high value.

† This double and sometimes treble ownership is very curious. We learn that "a mare of high breed is seldom sold without the seller reserving the half or two-thirds of her. If he sells half, the buyer takes the mare, and is obliged to let the seller take the mare's next filly, or the buyer may keep the filly and return the mare. If the Arab

On the birth of a foal of noble breed, it is customary for the owner to call together credible witnesses, and to draw up an account of the foal's markings, with the name of the sire and dam, which is duly attested. This certificate of noble parentage (the nobility of the parents having been in their infancy similarly attested, and generally well known) is often put into a little leathern pouch and hung round the neck of the foal, ready to be produced if needed.

The far-famed Arab horse is of rather small stature, seldom exceeding fourteen hands and a half or three-quarters; of a slim and sinewy make, with the head beautifully set on, and full of fire and animation. The eyes are large, bright, and open; the forehead short and square, wide between the ears, which are small and sharp; the chaffron is concave; the muzzle short and slender, with large open nostrils; the neck is exquisitely arched; the chest of moderate breadth in front, with the humeral joint prominent, and the shoulders high and falling back; the barrel is of moderate volume, ample behind the set-on of the fore limbs, giving room for the play of the lungs; the tail springs high from the croup, and, like the mane, is flowing; the limbs are slender, well knit at the joints, with oblique elastic pasterns and small hard hoofs; the hinder limbs are well bent; the muscles are all decidedly marked, and the skin, which is fine, is replete with a network of rising veins. Every action is free, firm, and easy; and though the speed of the Arab steed may not equal that of a first-rate British

has sold but one-third of the mare, the purchaser takes her home, but must give the seller the fillies of two years, or else one of them and the mare. The fillies of all subsequent years belong to the buyer, as well as all the male colts produced on the first or any following year. It thus happens that most of the Arab mares are the joint property of two or three persons, or even of half-a-dozen, if the price of the mare be very high. A mare is sometimes sold on the remarkable condition that all the booty obtained by the man who rides her shall be shared between him and the seller."—*Phys. Hist. Palest.*

racer, at least of times gone by, the power of endurance is very great, and the strength sustained on a scanty fare. Such is the Arab steed, so justly celebrated.

In the treatment of his steed the Arab differs widely from the English groom. The foals are fed on camel's milk, and may be seen trotting by the side of their tall foster-mothers, to whom they become strongly attached, and the feeling is returned. They form part and parcel of the Bedoueen's family,—associate familiarly with the inmates of the tent, learn to come when called by their name, and acquire the intelligence and docility of a dog. When the age of two years is attained, the colt is mounted for real service, and seldom is the saddle off its back. The food consists of five or six pounds of beans or barley, with a small portion of chopped straw, given morning and evening, with a little water, and occasionally a short feed of dates and camel's milk, or green herbage. All the year, summer and winter, is the animal exposed to the air, tied to the tent during the day, or perhaps let loose to play around it, her master having only to call for her if he wishes to mount. At night she sleeps in the midst of her owner's family, neither fearing nor injuring any. On a sudden emergency she is ready to scour the desert guided only by a halter, and will strain every muscle at the encouraging voice of her daring master. For fifty miles at a single stretch, without a halt, will the fiery mare of the Bedoueen sweep along with power in every stride, with flashing eyes, and expanded nostrils, glorying in her might—nay, we have heard that with little respite and less food, a hundred and twenty miles have been performed, and that, be it remembered, by an animal gentle as the lamb in her master's tent, and affectionate as the attached dog.

Colonel Hamilton Smith states that there was a few years since an account given in the newspapers of a bet against time won by an Arab horse at Bungalore, in the Presidency of Madras, running four hundred miles in four consecutive days. This exploit occurred in July, 1840. The same admirable and excellent officer gives, on the authority of Frazer (' Tartar Journeys '), a still

Arab Horse.

more striking instance of the vigour, speed, and power of endurance of the Arab: Aga Bahram's Arab carried Mr. Frazer from Shirauz to Teheraun, five hundred and twenty-two miles, in six days, remained three to rest, went back in five days, remained nine at Shirauz, and returned again to Teheraun in seven days. Another horse of the Aga's carried him from Teheraun to Koom, eighty-four miles, starting at dawn in the morning, in spring, and arriving two hours before sunset—that is, in about ten hours. These, however, were first-rate Arabians of high-blood.

That the Arabs should love their steeds, endowed as they are with such physical and moral qualities, is not to be wondered at: this feeling was, indeed, strenuously inculcated by Mohammed, who, speaking of the horse, says—"Thou shalt be for a man a source of happiness and wealth,—thy back shall be a seat of honour, and thy belly of riches; every grain of barley given thee shall purchase indulgence for the sinner." To this may be added the laws of humanity and kind treatment to animals enjoined by the Kurán, and which all true Muslims feel it incumbent upon them to exercise. Yet with respect to the horse their affection seems extravagant, only that we must make allowance for the fervour of Oriental feelings and phraseology, little in consonance with our coldness.

D'Arvieux thus describes the feelings of an Arab towards his mare, which he had sold on terms of partnership to a Marseilles merchant. The mare of the first noble race was named Touysse; she was young, and exquisitely beautiful, and the partnership was purchased for twelve hundred crowns. The merchant had her whole genealogy, with her descent both on the sire's and mother's side for five hundred years back, all from public records. "Ibrahim (for such was the Arab's name) made frequent journeys to Rama to inquire news of that mare, which he loved extremely. I have many a time had the pleasure to see him cry with tenderness while he was kissing and caressing her. He would embrace her, wipe her eyes with his handkerchief, rub them with

his shirt sleeves, and give her a thousand blessings during whole hours that he would continue his discourse to her. My eyes! my soul! my heart! (he would say), must I be so unfortunate as to have thee sold to so many masters, and not be able to keep thee myself! I am poor, my gazelle! You well know, my sweet, that I have brought thee up like my child; I never beat thee, never chid thee, but did cherish thee as the apple of mine eye! God preserve thee, my dearest!—Thou art beautiful, thou art sweet, thou art lovely! God defend thee from the evil eye!—In this strain he would go on, saying a thousand similar things, and finish by embracing her, kissing her eyes, and bidding her as he went backwards the most tender adieus." Often, however, not even poverty, with the most tempting offers, will overcome the Bedoueen's reluctance to part with his mare. In the time of Louis XIV. the French consul at Said entered into a negotiation with a poor Bedoueen for the purchase of a most beautiful mare, all his property, on behalf of the French King, for whom she was destined. The Arab hesitated a long time, but at length, on the condition of receiving a very large sum of money which he named, consented. The consul, not daring without farther instructions to give so high a price, wrote to Versailles for permission to close the bargain on the terms stipulated. Louis gave orders for the money to be paid. The consul sent immediate notice to the Arab, who soon afterwards made his appearance mounted on his magnificent courser, and the gold which he had demanded was paid down. The Arab, covered with a miserable rug, dismounted—gazed on the gold—sighed—turned his eyes to the mare, and thus accosted her:—"To whom am I going to yield thee up? To Europeans, who will tie thee close, who will beat thee, who will render thee miserable! Return with me, my beauty, my darling, my jewel, and rejoice the hearts of my children!" As he pronounced these words, he sprung on her back, and instantly galloped off towards the desert.

A narrative of very similar character is given by

D'Arvieux—we are not quite sure that it does not refer to the same incident as the above, which is told by St. Pierre. The Rev. V. Monro, in his 'Summer's Ramble in Syria,' also gives an instance of the great reluctance with which the Arabs consent to part with their mares. He states that on his visit to the river Jordan, one of the escort, an Arab and "a great ruffian, was mounted on a white mare of great beauty. Her large fiery eye gleamed from the edge of an open forehead, and her exquisite little head was finished with a pouting lip and expanded nostril. Her ribs, thighs, and shoulders were models of *make*, with more bone than commonly belongs to the Syrian Arab, and her stately step received additional dignity from that aristocratic *set-on* and carriage of the tail, which is the infallible indication of a good family. Having inquired her price, I offered the sum, whereupon the dragoon asked one-third more. After much bating and debating I acceded, and he immediately stepped back in the same proportion as before. This is invariably the practice with the Arabs. It has happened to me repeatedly in hiring horses, that if the terms have been agreed upon, without two days being occupied in the treaty, they imagine more might have been obtained, fly from the bargain, and increase their demand. I therefore discontinued my attempts to deal. The Arab said he loved his mare better than his own life; that money was of no use to him, but that when mounted upon her he felt as rich as a pasha. Shoes and stockings he had none, and the net value of his dress and accoutrements might be calculated at something under seventeen pence sterling.

The Bedoueen, or Bedawee, makes of his mare what we do of the dog—namely, a familiar friend; and the animal understands its master's words and actions. As he sweeps on his steed over the desert, a word is sufficient to stop it in its swiftest speed—a touch with his hand will serve to urge it to its utmost. If he drop his spear or any other object, his steed will pick it up with its lips. It will fight in his defence; and, it is said, will even wake him from sleep on the approach of danger.

Turkoman Horse.

Habituated to almost incredible efforts, fed upon scanty fare, exposed to the vicissitudes of the weather, the Arab courser seems as if expressly made for the nomade marauders who glory in its possession. It unites in itself speed, energy, courage, docility, and power of endurance; and there is no celebrated stock of blood-horses in Europe, in Asia, and Northern Africa, which is not in a great measure derived from the Arabian. It is to this intermixture that the English race-horse owes its perfection.

Besides the true Arab breed, there are in Syria the Turkoman or Toorkee horse, and the Kourdy. The Turkoman horse derives its beauty and good qualities from the Arab; which, however, it exceeds in size, and almost equals in powers of endurance. It is of noble and martial appearance, and the gaudy trappings of the Osmanlis set its fine figure off to great advantage. The Osmanlis in general prefer this breed to the pure and more slender Arabian; and break it in not only to walk gracefully, but to start off instantaneously, to wheel, to turn, to stop, at full career. They play the violent games of the djerid and of the ball and golf-stick, mounted on their well-trained horses, which obey the least touch of the bridle or the spur. True, the bit is terribly severe, and when drawn tight painfully compresses the lower jaw; this the horse knows full well, and seldom needs more than the slightest touch to obey the reins.

The Kourdy race is between the Turkoman and the pure Arab; it has much of the lightness and speed of the latter, and is beautiful and enduring. This race extends through Persia, where it is highly valued.

There is some difference in the treatment of their horses between the Bedoweens and the Turkomans. The author of the 'History of Palestine' says that, "In Syria, as elsewhere in Western Asia, the horses universally live on barley and chopped straw. They are regularly fed morning and evening; and for the most part eat nothing in the interim. In the stable the provender is laid before them in troughs; in the fields it is put into

hair-bags, which are fastened in such a manner to the horse's head that he can feed as he stands. In the spring season the horses are fed, for forty or fifty days, with green barley cut as soon as the corn begins to ear. This is termed "tying down to grass;" during which time the animals remain constantly exposed to the air; and for the first eight or ten days are neither curried, mounted, nor even led about. After this season they are mounted as usual, and rode out gently, but are never much worked in the grass season. Some feed their horses with the cut-down corn in their stable-yards; but it is considered better to tie them down in the barley-fields, where they are confined to a certain circuit by a long leather. This grazing is considered of great service to the health of the horses, and gives a beautiful gloss to their skin. They are at all times littered with the refuse of their provender mixed with their own dung dried in the sun." The Bedoween mare has no such luxuries; she has no stable, no sumptuous feed upon green barley, no grooming; nor is she drilled in the school of the *manége*. For green fodder there are the scanty shrubs of the desert: dates and camel's milk, a little barley, and chopped straw, form her staple food. The sky is her stable, excepting when her colt is at her side, and then she has the luxury of her master's tent. Little she knows of the curry-comb; nor is she trained to graceful paces: when of proper age her wild master vaults upon her back, and scours the desert, till fatigued she returns to her old familiar tent, where familiar hands caress her, and familiar voices remove her fears. Her master is proud of her; but mere pride alone is not what he feels—it is mixed with affection, with interest, with the warmest concern for her welfare. Nought cares he for splendid trappings, or acquired paces; enough for him that she is fleet and faithful, and will bear him like a whirlwind on his prey.

While the surrounding nations prefer stallions for the saddle, the Bedawee chooses mares: the reason for this preference is generally attributed to the superior patience and endurance of the latter; and particularly to the fact

that mares do not by their neighing give notice, as stallions would, of the approach of a hostile force, desirous of assaulting by surprise. Such perhaps may be the reason, or might have been originally, custom confirming the practice.

*The Persian Horse.*—There are several breeds of horses in Persia, all more or less crossed with the Arab, but generally of greater bone and stature; many are admirable as cavalry horses, while others are first-rate roadsters, having great sureness of foot, and extraordinary power of endurance. Major Keppel mentions the instance of a courier whom he met between Kermanshaw and Hamadan, one hundred and twenty miles distant from each other, and who performed the journey over a rugged mountainous tract in little more than twenty-four hours; and the next morning set off on the same horse for Teheran, two hundred miles further, expecting to reach that place on the second day.

The roads, or rather beaten ways, in Persia are notoriously bad and rough, and those over mountain-passes might well alarm the boldest rider; yet, confident in the surefootedness of his horse, the Persian gallops fearlessly along, as if over a level turf. The Persians are riders from childhood, and their maxim is that a path which is safe for the foot of a man is safe for that of a horse. Hence they dash along, over steep rocks and along the stony mountain paths, without fear; and so accustomed are the horses to these difficult roads—which others, accustomed only to plains and level tracts, would hesitate to attempt—that serious accidents seldom happen. To keep a horse on the gallop for forty or fifty miles over such paths is by no means uncommon; and, indeed, horses of inferior breed, with a load of upwards of three hundred pounds on their backs, will perform over them most extraordinary journeys, exhibiting a marvellous power of supporting fatigue. The horses in Persia are fed with straw chopped small and mixed with barley; and this provender is seldom given them except early in the morning and at sunset: about an hour after each feed they are allowed water. Much care is also taken in

clothing them according to the climate and season of the year. In warm weather they are kept under the shade of tents or trees during the day, and at night placed in court-yards or stables, secured by halters, having the heels also tethered with ropes, to prevent their inflicting injury on each other, as they are very apt to quarrel and fight, and that very furiously: indeed, the pugnacity of stallions is almost uncontrollable. In spite of every care they sometimes break loose, and a terrible combat ensues: they bite and kick each other in the most ferocious manner, and are not to be separated without great difficulty and danger. Nor is their mutual animosity confined to these occasions; in the battles that take place between horsemen, the horses of the combatants seem animated by the fury of their riders, and tear each other with their teeth, whilst the scimitars are flashing over their heads. The spirit of these horses often renders it no easy task to break them in. Mr. Morier mentions a singular method which he saw practised in some part of Persia, in order to subdue the temper of a very vicious horse, on which ordinary proceedings had no effect. The horse was muzzled and turned loose in an enclosure; there to await the attack of two horses, whose mouths and limbs were at liberty, and which were turned in to attack him. So effectually did this discipline operate that he became completely altered, and as remarkable for docility as he had previously been for savage obstinacy.

In Persia the horses are littered in the stable on dried horse-dung reduced to powder; and they are usually rubbed down morning and evening. They are regularly exercised, and when training for trials of speed and endurance, are also sweated, till all superfluous flesh is lost, and they become meagre in the extreme. Circassian, Turkoman, and Kourdy horses are in great request; and there is a valuable breed on the coast of the Persian Gulf, of a white colour, speckled with dark brown.

The Persian bit is very severe, as is also the stirrup, which is formed of a flat piece of iron, about six inches long, and four broad; it is turned up at the sides, and

has sharp corners, which are struck as spurs against the horse's flanks. The Persians also use a long and heavy whip, and are fond of magnificent trappings. Their baggage-horses and mules are ornamented with tassels and bells, which keep up a perpetual jingling: formerly the pack-horses in England were similarly accoutred, as well as the waggon-horses; nor is the practice quite obsolete.

*The Turkish Horse.*—The race of horses in Turkey is principally of Tartar and Arabian origin—the Arab blood in the better class greatly preponderating. Many of the horses have exquisite symmetry, and are full of fire and spirit, but at the same time are very tractable. They have, however, less power of endurance than the genuine Arabian.

*The Barb of Morocco.*—From a very early period of antiquity the northern line of Africa was renowned for horses and horsemen; nor is the horse of the present day degenerated. The barb is beautiful and fleet, with splendid action and high spirit; but perhaps somewhat lower than the Arabian, seldom much exceeding fourteen hands in height. The mane and tail are full and flowing. In many of the breeds the Arab blood greatly prevails; and of these some are noted for their wonderful endurance of fatigue. Horses only are ridden by the Moors, and are not mounted till four years of age: they then undergo severe discipline, being seldom unsaddled, and are fed upon chopped straw and barley, or dhurra, sometimes with camel's milk and crushed dates, and that at most only once a day. Such however is their energy, that they will continue a gallop over the burning sands and rough broken ground of the desert for fifty or sixty miles at a stretch, without being overwearied with the exertion. There is a noted breed, called by the Moghribins "Drinkers of the wind," renowned for their powers. They are low, very meagre, but with prodigious strength and energy; yet it is asserted that they are fed once only in three days on camel's milk and a few dates, and not ridden till seven years old. When young they are nursed by she-camels, and follow their foster-mother for a long time before being weaned.

In Libya and Nubia there are splendid breeds of horses, some of large stature and great power; others more approaching the Arab or Barb in size and contour, and evidently of Arab origin. A black race, with white limbs, and having vast strength, is in high request: individuals of this stock often exceed sixteen hands in height, with flowing mane and tail. The Arab tribes of Sennaar and Darfoor possess noble steeds, on which they give chase to the giraffe; and a splendid race extends into Nigritia. The Shouaas, on the banks of the Tchad, export annually from two to three thousand horses to Soudan, where they fetch a good price, the horses of that country being inferior. Horses of a small breed are reared in the Ashantee country. Among the Begharmis, good horses exist, and also among the Moors and Arabs even nearer the equator. Very fine horses are reared at the Cape of Good Hope, mostly of a black colour, and between European races and Barbs or Arabs.

*The Indian Horse.*—The best horses in India are of Arabic or Persian descent; the old native breeds are very inferior. In Moore's 'Notices of the Indian Archipelago,' we are informed that in every country lying east of the Burrampooter and south of the tropic, the horse, however diversified, is little better than a pony. This fact, after quitting Bengal, is first noticed in the countries of Cassay, Ava, and Pegu. Here the horse is seldom above thirteen hands in height, but is tolerably well-formed, active, and spirited. As we proceed to the south and east the horse becomes more diminutive, and those of Lao and Siam, and the southern provinces of China, are inferior in form and stature to those of Ava and Pegu. Barrow, in 'Travels in China' (Journey from Tong-choo-foo to the Province of Canton), says (p. 493), "that horses are rarely kept for luxury or for labour, and the few animals kept for agriculture, which are mostly asses, mules, or buffaloes, subsist in the winter season on chaff and straw, and their chief support in the summer is derived from the strong grasses that grow in the ditches, and from the common reed, with which in

this part of the country, large tracts of swampy ground are covered. The Siamese and Cochin-Chinese have no cavalry, and make no use of their ponies, except for riding on ordinary occasions; and even for this purpose they are not much in request, the higher classes preferring the elephant.* In the Malayan Peninsula the horse has not obtained a footing; there are no made roads nor wide plains in that country, and the natives living on the wooded banks of the rivers are in the habit of using canoes and boats in the place of beasts of carriage or draught. In Sumatra, however, two breeds of ponies, the Achin and Batta, occur; these are of small size, and spirited, but better adapted for light draught than the saddle.

Passing to the island of Java, we find an improvement in the breed of ponies, at least as respects size. Two distinct races are discernible, one peculiar to the plains, and one to the mountain districts: the former sometimes exceeds thirteen hands, but is of a sluggish temperament and coarse figure; the mountain breed is very small, but active and hardy. In Java ponies are used for the saddle, and as beasts of burden, but never by the natives, at least in agricultural labours or for any sort of draught. Europeans however harness these diminutive ponies in their carriages, and four drawing together will convey a traveller over the well-made roads of the country at the rate of ten or twelve miles an hour. The vehicle is, however, extremely light, for it would require twelve of these ponies to draw such a carriage as two good post-horses would go with for a stage of fifteen miles without any difficulty, on the same road. Since then one full-grown horse is equal as respects work to six of these ponies, and at most will not consume more than the food of two, there is, looking at the expense merely, little advantage in employing them for labour. In the islands of Bali and Lombock ponies exist, but of a very inferior breed, yet in the adjacent island of Sambawa there are two good races, viz., the Tamboro and the Bima stocks: the ponies es-

* A Burmese pony of very small stature has been kept for several years in the Zoological Gardens, Regent's Park.

pecially of the latter stock are handsome and are extensively exported; they have much symmetry and spirit, and have a small head and slender limbs, but the skin is thick and harsh, a circumstance at variance with what is termed high blood. Leaving Sambawa, we find that Flores, Sandal-wood Island, and Timor possess a few ponies, but in the Moluccas and New Guinea none appear to exist. In Borneo the horse exists at its north-eastern extremity, opposite the Sooloo group of islands, but in other parts it is either rare or wanting. The horse extends through the Philippine Islands, and is abundant in the island of Celebes, where, as we have said, it exists in a wild as well as domesticated state. The Celebes ponies are generally considered the best breed of any belonging to the Indian Archipelago.

There is great variety, according to the assertions of travellers, in the colour of the various breeds of pony within the Archipelago, a circumstance that tends to prove the diversity of stocks from which they have proceeded. The prevailing colour of the Achin pony is piebald, a style of marking that becomes rarer as we proceed eastward. The Batta ponies are for the most part bay and mouse-coloured. In Java bays and greys prevail; roan and mouse-coloured also are not uncommon, and occasionally black and chesnut are to be seen; but the Javanese have a great prejudice against these latter colours, and especially chesnut, that on public occasions they are not permitted to appear. Bima ponies are mostly grey, bay, and dun; and in the Celebes and Philippine Islands, greys and bays prevail, almost to the exclusion of other colours.

A breed of ponies, called Tuttoo by the Mahrattas, is sedulously kept up in Duckhun (or Deccan), where it is highly esteemed; it is perhaps from this, among other sources, that the ponies of the Archipelago are derived, for doubtless we must look to continental India, and perhaps China, as their original nursery.

A beautiful and spirited breed of ponies, brought from Tartary, and remarkable for sureness of foot, is in use at Laudour, in the Himalaya Mountains, where an estab-

lishment for the sick and convalescent of the armies in India is formed. These ponies show high blood, and have a perfect symmetry. They are extremely sagacious, and in traversing the dreadful passes of the mountains display the utmost caution and intelligence, evidently aware that a false step may hurl them to destruction. The rider, who must depend entirely on his pony, will act most injudiciously if he interfere with it; it must be left to its own discretion, and will generally accomplish its task in safety.

*The Cossack Horse.*—Entering upon the eastern borders of Europe, we encounter the Cossacks of the Don and Volga, celebrated as horsemen, and terrible as light cavalry from the rapidity of their movements. The Cossack horses are by no means very showy animals, and might at first sight appear inadequate to the severe labours of a toilsome campaign. Yet it was upon such horses, during the tremendous cold of a Russian winter, that the Cossacks harassed the retreating forces of Napoleon. These horses are rough, meagre, angular, and rather low; but are very strong and fleet, and capable of bearing the greatest privations. In the bitterest weather, when from cold and exhaustion alone hundreds of the French soldiers and horses perished, the Cossacks and their ragged steeds were all alert and active. An annular bank of snow thrown hastily up, with a fire in the central space, round which the men collected in a circle, with their saddled horses behind them, was sufficient shelter from the keen blast.

Such is the Cossack horse—such also is the horse of the Bashkirs, the Calmucks, and various tribes of central and southern Siberia, from the Ural Mountains to the great tributaries of the Lena. Throughout this extent of country there are herds of feral or half-wild horses, and of horses which we are inclined to believe are truly wild, and not the descendants of a domestic race.

In Russia there are several good breeds of horses, more or less immediately derived from the Cossack races, but improved by Circassian, Persian, and Arab strains, and both in that country, in Poland, and throughout the

Ukraine along the Dnieper, the long-maned, eel-backed, dun stock is prevalent.

In Transylvania, Hungary, Wallachia, and Moldavia, the ordinary race of horses is of small size, but considerable power, with marked osseous and muscular protuberances, a straight chaffron, large eyes, a small mouth, and open nostrils; anteriorly the chest has no great breadth, but the barrel is ample behind the shoulders; the croup declining, and the set-on of the tail low; the limbs are firm, and the hoofs sound and hard. A very superior breed between this old common stock and Turkish or Arab horses exists, forming what Desmarest terms the noble Transylvanian and the noble Moldavian races. In some of the mountain districts a small-sized dun breed prevails.

Norway, Sweden, and Finland have good breeds of small but strong and hardy horses; and in Iceland a similar but still smaller race, introduced by the old Norse colonists, is celebrated for its power of enduring, with little or no protection from man, the rigour of an Arctic winter. In 1804 there were, according to the census taken, 26,254 horses in Iceland. They much resemble the ponies of Shetland.

Of the hardiness of the Swedish horses, and of the kind treatment they experience from their masters, Sir A. de Capell Brooke gives the following account:—"While changing horses, we were not a little entertained at the curious group formed by the peasants and their steeds breakfasting together; both cordially partaking of a large, hard, rye-cake. This is their constant food on the road; and, indeed, throughout Sweden it forms the chief, and frequently the only, subsistence of the peasantry. Before setting out on a journey, a few of these cakes are strung together, which serve for the support of themselves and their horses. As the latter may sometimes belong to three or even four proprietors, it is highly amusing, on the road, to observe the frequent altercations between them, each endeavouring to spare his own horse; and, while running by the side of your carriage, using his utmost endeavours to persuade

the driver that it is an animal of such qualities as not to have the least occasion for the whip; at the same time, perhaps, giving him a hint, that, from what he knows of his neighbour's beast, the lash would be well applied there. The curious scenes that in consequence arise form not the least entertaining part of the journey. Their affection for their horses is so great, that I have actually seen them shed tears when they have been driven beyond their strength. Indeed, the expedition with which these little animals proceed is surprising when we consider the smallness of their size, which hardly exceeds that of a pony. Seven or eight miles within the hour are accomplished by them with ease; and the roads throughout Sweden being universally good, they frequently do not relax from a gallop until they have reached the post-house." (Sir Arthur de Capell Brooke's 'Travels in Sweden,' &c.)

Germany possesses excellent horses of various breeds, one of which is a noble black, called by the Dutch Hart-draver, and by the French Ardrave, namely, fast-trotter.

These horses run from fourteen to sixteen hands high; the head is small, the shoulders well laid back, the haunches prominent, the croup short and broad, and the limbs muscular and clean, but often fringed with longish hair up the sinew above the pastern-joint. They have considerable energy, but are said to be deficient in endurance. Some of the cavalry regiments of Germany, we believe, are mounted on these horses. Desmarest notices the Hanoverian horses as excellent, and states that they are either of a deep bay or black. The Frisian race resembles the former, but is proportionably longer in the body. "The so-named horses of Holland, Flanders, the north of Picardy, and those of Berg, Juliers, Trèves, Cologne, and Mayence, are of the Frisian stock."

The great black Flemish breed, without any white, of massive form, with a huge head, heavy limbs, short pasterns, large hoofs, and a mass of long hair at the pastern-joint, is well known:—it is from crossing this

heavy animal with finer and higher breeds, that we have obtained some of our noblest cart-horses.

While referring to the horses of Germany, we may by way of interlude introduce some observations published a few years since in the 'Quarterly Review,' relative to the opposite treatment which draught horses receive in Germany and England. It is from an article on German watering-places. The writer says:—"With regard to the management of horses in harness, perhaps the most striking feature to English eyes is, that the Germans intrust these sensible animals with the free use of their eyes. As soon as getting tired, or, as we are often apt to term it, 'lazy,' they see the postilion threaten them with his whip, they know perfectly well the limits of his patience, and that after eight, ten, or twelve threats, there will come a blow. As they travel along, one eye is always shrewdly watching the driver: the moment he begins his slow operation of lighting his pipe, they immediately slacken their pace, knowing as well as Archimedes could have proved, that he cannot strike fire and them at the same time; every movement in the carriage they remark; and, to any accurate observer who meets a German vehicle, it must often be perfectly evident that the poor horses know and feel, even better than himself, that they are drawing a coachman, three bulky baronesses, their man and their maid, and that to do this on a hot summer's day is no joke. Now, what is our method? In order to break in the animal to draught, we put a collar round his neck, a crupper under his tail, a pad on his back, a strap round his belly, with traces at his sides; and, lest he should see that, though these things tickle and pinch, they have not power to do more, the poor intelligent creature is blinded with blinkers, and in this fearful state of ignorance, with a groom or two at his head, and another at his side, he is, without his knowledge, fixed to the pole and splinter-bar of a carriage. If he kicks, even at a fly, he suddenly receives a heavy punishment which he does not comprehend; something has struck him and has hurt him severely; but as fear magnifies all danger, so

for aught we know or care, he may fancy that the splinter-bar which has cut him is some hostile animal, and expect, when the pole bumps against his legs, to be again assailed in that direction. Admitting that in time he gets accustomed to these phenomena—becoming, what we term, steady in harness—still, to the last hour of his existence, he does not clearly understand what it is that is hampering him, or what is that rattling noise which is always at his heels: the sudden sting of the whip is a pain with which he gets but too well acquainted, yet the 'unde derivatur' of the sensation he cannot explain—he neither knows when it is coming nor what it comes from. If any trifling accident or even irregularity occurs—if any harmless strap which ought to rest upon his back happens to fall to his side—the unfortunate animal, deprived of his eyesight, the natural lanterns of the mind, is instantly alarmed; and though from constant heavy draught he may literally, without metaphor, be on his last legs, yet if his blinkers should happen to fall off, the sight of his own dozing master, of his own pretty mistress, and of his own fine yellow chariot in motion, would scare him so dreadfully, that off he would probably start, and the more they all pursued him the faster would he fly! I am aware that many of my readers, especially those of the fairer sex, will feel disposed to exclaim, Why admire German horses? Can there be any in creation better fed or warmer clothed than our own? In black and silver harness, are they not ornamented nearly as highly as ourselves? Is there any amusement in town which they do not attend? Do we not take them to the Italian Opera, to balls, plays, to hear Paganini, &c., and don't they often go to two or three routs of a night? Are our horses ever seen standing before vulgar shops? And do they not go to church every Sunday, as regularly as ourselves? Most humbly do I admit the force of these observations; all I persist in asserting is, that horses are foolishly fond of their eyesight; like to wear their heads as nature has placed them; and have bad taste enough to prefer dull German grooms and coachmen to our sharp English ones."

Passing to France, it appears to be only within the last few years that a systematic attention to the improvement of the different breeds has been carried out. In Normandy, however, we have noticed a good and powerful breed—both bay and grey, but mostly of the former colour—and Colonel H. Smith says, that he has seen at Munich the Life-Guard cuirassiers mounted upon horses of Normandy (of the old bay stock), selected by the Bavarian government, and taken in part of the indemnity paid by France in 1815-16 to the allied armies, and that he never observed the Royal Guards of France so well mounted, nor with their horses in such good order, as those were in German hands. Since that date, the French cavalry have had better steeds. In 1838 we had an opportunity of seeing a cavalry regiment (then at the barracks of Versailles), which was splendidly mounted; the horses were admirable; and in the present time Algeria offers unlimited means of elevating the French races of the horse to the highest perfection. M. Huzard says that many authors regard the horses of Normandy as the descendants of an ancient Danish stock, and suppose that this stock was introduced into the country at the time of its conquest by the Norsemen. The circumstance is not improbable.

Desmarest notices a "race Limosine noble" of great beauty, vigour, and lightness; and also a "race Navarrine noble," of Spanish origin, reared in Navarre, Béarn, Condomois, Le Pays de Foix, Roussillon, &c. Both these races he says are reduced to total degeneration. Was it of a horse of one of these breeds that the Dauphin boasts in Shakspere's 'King Henry V.' exclaiming, "It is the prince of palfreys; his neigh is like the bidding of a monarch, and his countenance enforces homage?" Desmarest notices a race of a light grey colour, confined to the Isle of Camargue, and to the morasses near Arles (Provence), which he says exists in a state of perfect freedom throughout the year, and breeds like the wild horse. It is active and vigorous. He also notices the Ardenne race, as hardy and capable of great improvement; and the laborious race of la Franche-Compté. But these and other old breeds are

more or less rapidly passing away, as they themselves merged out of others before them; they are the degenerate offsets of better studs, destined by the care of man to become in their turn ameliorated.

In eastern and southern France, from the Jura to Provence, a Swiss or Helvetian breed of horses is much employed in the service of diligences and for posting. These horses are generally black, stout, muscular, and hardy; of good size, with a heavy head and obtuse muzzle, a broad croup, and hairy fetlocks. This breed is capable of great improvement.

From France let us turn to Italy. When we reflect that the ancient Romans, as they pushed their conquests, drew to their own city the products of other countries, we cannot but admit that they must necessarily have established in Italy various breeds of horses; Thessalian, Armenian, Gallic, Gothic, German, and old Italian stocks becoming interblended more or less together. Yet as no system of improvement was pursued, and as puerile fancies influenced the views and opinions, not only of the people generally, but of the higher ranks also, it is not to be expected that a renowned stock would owe its origin to their exertions. When Rome fell, and Goths, Ostrogoths, and Longobardi in their turn swept over Italy, other changes would take place in the character of the breeds of the horse; and these have again been influenced by Turkish, Barbary, Hungarian, and other races: and at length noble stocks were established; and now even Italy possesses good horses, some of which still retain the name of Barbari or Barbs, though with no positive claim to the title. A writer speaking of the Neapolitan vehicles of pleasure, which are driven along with reckless vehemence, says, "In former times there used to be grand displays of driving at the end of Carnival and beginning of Lent (relics of ancient customs), and many of the great families had numerous and excellent studs, and bred horses of great spirit and beauty. Though these establishments for horses of pure blood are entirely broken up, the common breed of the kingdom is generally far from bad, while many parts of Calabria, and some districts of

Apulia and Abruzzi, still furnish excellent animals. The Neapolitan horse is small, but very compact and strong; his neck is short and bull-shaped, and his head rather large, he is in short the prototype of the horse of the ancient *bassi-rilievi* and other Roman sculptures found in the country. He can live on hard fare, and is capable of an immense deal of work; he is frequently headstrong and vicious, but these defects are mainly attributable to harsh treatment, as with proper gentle usage, though always very spirited, he is generally found to be docile and goodnatured. The Neapolitan cavalry, composed almost entirely of these small horses, bred under the burning sun of the south of Italy, withstood the rigours of the winter in the memorable Russian campaign better than almost all the others; and it is a curious fact, that during his retreat from Moscow, Napoleon owed his preservation to a body of three hundred Neapolitan horse, who were still mounted and in a state to escort him." The buffalari, or keepers of the savage herds of buffaloes in the wild marshes of the Calabrias, of Apulia, the Pontine Marshes, &c., are all well mounted on horses of great vigour and spirit, without which it would be impossible for them to manage their charge or drive the herds to the fairs.

A writer in the 'Penny Magazine' states that the great number of horses kept on the vast pastoral farms of the Campagna is a very striking feature of that economy. It was not unusual, he adds, to find from three hundred to four hundred horses of all sorts on one farm. Many of these, perfectly wild and unbroken, seemed to be kept for no other purpose than that of threshing out the corn; this rude and primitive manner of threshing being common throughout Italy. On these immense farms, no factor, no capo, or head of a company of herdsmen, no cattle-driver, ever thinks of walking on foot: if he has to go only a quarter of a mile, he vaults into his cumbersome antiquated saddle. They may be said to pass more than half of their time on horseback. The factor of a friend who was showing us over a farm, stopped and fell a-panting before we had gone two

hundred yards. "For the infantry," said he, "I am bad, but I am good on horseback;" and so he proved himself to be when we all mounted. The stable is generally of immense size; and besides those that are out, there are always within a certain number of horses saddled and bitted and ready to start. Thus mounted, the factor and upper men being armed with muskets, and the herdsmen and cattle-drivers with long lances, they gallop over the plains, looking at a distance like a marauding band of wild Arabs. Some of these farm-horses are old and well trained, and singularly patient and docile, often remaining for many hours in vedette without being fastened, and exposed all the while to the great heat, and the terrible persecution and rage of the gadflies and of other flies bigger and sharper than we ever saw them elsewhere. Others he states to be colts, some of which, when intended for the saddle, the cattle-drivers break in and train; but when destined for draught, they are sold in their wild state. (See 'Penny Magazine,' 1845, p. 330.)

From the same writer we learn that a few years since the Roman and Neapolitan nobility took a pride in their studs, and bred beautiful horses, both for the saddle and draught. The Borghese family had a remarkably fine breed of a curious bronze-like colour. It was flourishing and numerous as late as the year 1796; but during the wars and spoliations of the French Revolution the brood mares were carried off, the whole stock was dispersed, and the type, as far as we could discover, entirely lost. As the French invaders helped themselves, it is probable that most of the Borghese steeds perished in battle or under the toils of the march. There were crosses of the breed as well in Tuscany and the Neapolitan States as in the States of the Church; but a pure unmixed Borghese we never saw. It was a common and a barbarous custom in the south of Italy to put a distinctive mark on thorough-bred horses by burning them on the flank with a red-hot iron, on the face of which was cut the owner's crest, or a royal crown, or some other device. The poverty consequent

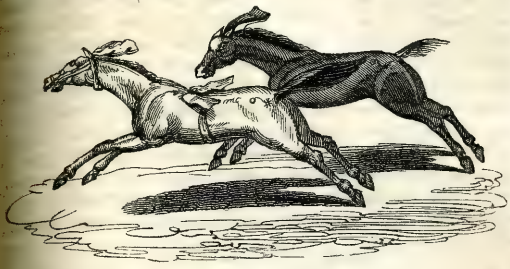
upon wars and revolutions, and the establishment, in a great part of the peninsula, of the French law of inheritance, which, in a few generations, must utterly break up the most wealthy families, has prevented the reformation of good studs, or any extensive attempt to restore the old breeding establishments in Italy. Here and there an amateur is found sufficiently favoured by fortune to have the means of bestowing some attention to breeding; but, taking all the peninsula, their collective number is but small. The only horses now bred in the Campagna of Rome are of a mixed and middling breed. They are all black; their form is neither decidedly bad nor decidedly good. They are all entire, and by no means deficient in spirit. Occasionally a horse of truly admirable qualities is found among them. In these railroad days it sounds ridiculous to talk of the speed of any other mode of travelling; but a quarter of a century ago we thought it was rare posting, that between Rome and Naples! We certainly never saw so much speed attained by post-horses in any other country, not even in England, and when the post-boys were promised double fees. Most travellers will remember the "*Scampatori*," or "runaways," of the Pontine marshes. They were all poledri—colts or very young horses—hot, wild, vicious, and almost unbroken; but for spirit, wind, and speed they were very often astonishing creatures. The mischief and the danger lay in getting them put-to. Very often they had just been caught and brought in from the marshes, or from the great plain beyond them, which is almost as wild as a desert of Arabia. It would often require half a dozen of men to put-to a pair of horses and to prevent their bolting when put-to. With four of these snorting, neighing, kicking, and biting equinine devils, the task of putting-to was tremendous! There would be a couple of fellows at every horse's head, holding on with all their might, while the postilions were getting into their saddles; and then, the riders being fairly mounted, there was a whoop and a scream, and away went the Scampatori, like an arrow from a bow, starting with a gallop, and

rarely if ever moderating their pace until they came to the next post-house, some twelve or fourteen English miles off. "There is nothing for it," said an old Neapolitan priest, "but to sit still and say, 'The Lord have mercy upon us.'" As for stopping, there could seldom be question of that, for the poledri had generally the bit between their teeth and the mastery over their riders. Luckily the road was for many miles broad, and as smooth as a bowling-green; but for a long space there was that ugly, deep, draining canal, cut by Pope Pius VI., running close by the side of the road! The post-masters generally kept these poledri in store for the English; "for," said they, "your Milordo always likes to go fast, and he knows what horses are." ('Penny Magazine,' 1845, p. 329, *et seq.*)

A light race of horses is known in Italy under the name of Barbari. These Barbari or Barbs, so called by the Italians, are used to run matches or races, which form the principal amusements of the Carnival at Rome and in other towns. They are of small size, being usually under fourteen hands in height; are clean limbed, well formed, compact, and vigorous; show great spirit, and many marks of good blood. Nevertheless, they are not comparable to a half or three-parts blood pony of English breed. When we talk of the races of the Italians with their Barbari, it must not be supposed that they at all resemble the races of Newmarket or Epsom. The horses, in the first place, are not mounted; there is no skill in jockeyship to be displayed: in the next place they are urged from the starting-place by shouts, and goaded on by a sharp instrument attached to them, and have their heads ornamented with gay plumes of feathers.

The whole affair is thus described by an eye-witness of the sport as conducted at Rome:—"To a girth which goes round the body of each, are attached several loose straps which have at their ends small balls of lead from which issue sharp steel points,—the motion imparted to these straps by the animals' running keeps up a continual spurring on their flanks and bellies. Sheets of

thin tin, stiff paper, or some other substance that will make a rustling or rattling noise when agitated, are also fastened on the horses' backs.



Italian Horse-racing.

"The last-mentioned articles serve to startle and alarm them, as if the prickly leaden balls were not excitement enough. The rearing, kicking, pawing, and snorting they make, when thus equipped, may be easily conceived. The most interesting part of the sight is that which is exhibited when they are just about to start. A very strong rope, secured by a machine on each side, is drawn across the street of the Corso, and up to this each man tries to bring his horse, holding it in with all his might by the head. The Trasteverini, and many of the peasantry in the neighbourhood of Rome, are remarkably fine, muscular men; and as they generally go to work with their arms and necks bare, and as they have frequently to maintain a struggle of downright strength with their excited horses, the action of their limbs and muscles, and other circumstances, offer a useful exhibition to the sculptor or painter. Though there are no riders, human life is more endangered in these than in our races. Sometimes the horse masters his groom, and breaks away before the Corso is cleared of people, in which and in several other cases serious accidents are almost sure to happen.

"When matters are ready, a troop of dragoons set off from the other end of the Corso, and go at full gallop towards the starting-post, clearing the way: these soldiers then retire, and soon after an officer blows a trumpet from a balcony erected near to the spot whence the race is to begin. At the sound of the trumpet the strong rope stretched across the street drops, the grooms let go their hold, and off start the horses like arrows from a bow. The harder they run, the more they are pricked. Some of them have been known to be so wise as to stop, when the motion of the leaden balls, of course, would cease; but generally they run on at mad career, and *occasionally show* emulation and spite by catching and biting at each other.

"The judge of the race is no less a personage than the Governor of Rome, who stands at a window in the palace of Venice, at which building is the goal or winning-post, or, as the Romans call it, 'la ripresa de' barberi.' A little beyond this palace the street is shut in with a screen of strong canvas, through which the horses not unfrequently dash, though to their eyes it must look almost like a wall. The prize given to the master of the winning horse is merely an ornamental flag, and a piece of embroidered stuff.

"During the first six days of the Carnival, which at Rome is limited to eight days, matches of mares, barbs, and other horses, are run alternately; but during the two last days these different classes of animals run all together, and thus naturally add to the riot, danger, and confusion of the exhibition.

"Though betting, which gives such a perilous interest to our racecourse, is by no means common, and the prize contended for so little worth, nothing can exceed the eagerness of the excitable Italians on these occasions. During the heat the spectators honour with deafening 'bravos' the horse that runs well, and hiss and hoot with almost equal noise all such as lag behind."

In Corsica a small but lively and active breed of

ponies exists, and is derived from a stock of great antiquity. In Sardinia there is a fine race of horses, for the improvement of which there is a government establishment, where Arabian and Spanish stallions are kept. There is also a breed of small ponies. Besides these, a species of wild horse, of indomitable temper, and regarded by some naturalists as aboriginal, is found in the territory of the Baltei and of the Nurra, and in the island of St. Antiochio, where the mouflon ranges free.

From Italy we may proceed to Spain. From the earliest periods Spain appears to have possessed noble horses. It must be remembered that when Spain was peopled by the Iberi and Celtæ the Phœnicians not only traded with the country, but had extensive settlements there, and doubtless introduced horses from Western Asia. Afterwards, the Carthaginians must on their invasion have brought in the steeds of Numidia and Libya, some of which, escaping the destruction of war, would remain and intermingle with the native breed. When Spain was freed from the Punic yoke, and became a Roman province, it was celebrated for its horses, numbers of which were bred for the Roman market. At a still later period the Visigoths, Vandals, and Suevi overran Spain, bringing with them a race of black steeds of great size and power, which, on the expulsion of the Suevi and Alans by the Visigoths, reached the shores of Northern Africa. In 711, during the reign of the Gothic monarch Roderic, the Arabs of Northern Africa, under Tárik Ibn Zeyad, invaded Spain, and the country became soon divided into two empires, till at length, after the lapse of nearly eight centuries, the Saracenic power was destroyed. With the African Arabs came their magnificent steeds; and Andalusia, which comprises the four Moorish kingdoms of Seville, Cordoba, Jaen, and Granada, is still renowned for its splendid breed of horses. Of these the finest are bred in the Loma de Ubeda, the Dehesa of Cordoba, and the Cartuja of Jerez. It may be observed, however, that the declension of the Andalusian steed

Andalusian Steed of the Cid.

began soon after the expulsion of the Moors; this deterioration increased rapidly during the Peninsular war, and the subsequent political disturbances; still, however, there is little doubt but that the Andalusian stock might be soon raised to its pristine state of excellence. Bay, black, and grey are the three principal colours of the Andalusian horse; and of these the mulberry-black

race is esteemed of the highest breed and greatest strength. Some few are cream-coloured, called *Perlinas*, but from the colour of the eyes and skin it is evident that they are affected by albinism. It is from the Andalusian breed that the feral horses of Peru and Mexico are derived.

We may now turn to the horses of the British Islands, of which some breeds are unrivalled. We have already observed that the Romans, when they first invaded Britain, found the natives in possession of small but hardy and spirited horses, which they yoked to war-cars, in the management of which as charioteers they were extremely skilful. That the British horse would undergo considerable modification from its admixture with other breeds, imported during the dominion of the Romans in our island, from Italy, Gaul, and Spain, cannot for a moment be doubted ; but what new breeds arose, and to what extent the improvement attained, we have but imperfect means of ascertaining. We know, however, that a pony breed was kept up, and that numbers were sent to Rome. To the present day several breeds of ponies, continued most probably from the ancient stock, maintain their ground in our island.

We may well believe that the Romans on their abandonment of their British possessions left a valuable stock for the benefit of the Anglo-Saxons, who in a short time established themselves in the island. What attention they paid to the breed of horses is not very clear till we come to Athelstan, who forbade the exportation of horses under any circumstances, except as presents to monarchs, whence it may be concluded that the English horse was valued on the Continent. Besides adopting measures to preserve the native breed, Athelstan endeavoured to improve it, and in 930 received as presents from Hugh or Hugues the Great (who had married his sister Ethelda, and was the founder of the Capet dynasty) several German running horses, that is horses formed for speed and endurance. From this circumstance we may surmise a gradual improvement in some of the English stocks of horses, up to the time of the Norman Conquest, which

as might be expected, was productive of still further changes, for the Norman barons were mounted on fine horses; many, as was William himself, on Spanish chargers, and studs of this race were afterwards introduced by them upon the estates they acquired by the right of the sword. Though the figures on the Bayeux tapestry are rude, still they lead us to infer that the horses of the Normans were more light than the heavy war-steeds used by knights clad in complete steel, at a subsequent period; for the armour at that time was not oppressive, being a sort of tunic with rings of steel sewn on it, forming at once a sort of trowsers and body vest, while the helmet was a mere skull-cap with a part called a nasal to protect the front of the face. Instead of the heavy tilting-spear, light lances, used also as javelins, were employed, and no plates of armour encumbered the horse.

William I. and Tonstain. From the Bayeux tapestry.

As heavier armour came into vogue, heavier horses were required, and the Norman barons did not neglect a breed

of animals so essential to their power, and the maintenance of their dignity. It may be interesting to inquire as to what influence the Crusades had upon the horses of our island, for it was during the wars of the Cross that the chivalry of Europe came into contact with the spirited and noble breeds of Arabia and Syria.

History informs us that the ruinous Crusade in which Richard Cœur-de-Lion played so conspicuous a part, drained France and England of men and money; but as so many knights, nobles, and persons of rank joined the expedition, taking with them their trained war-horses, both countries must have been equally drained of first-rate steeds, and more especially England, for the King of France returned to Europe before the close of the war, leaving only ten thousand troops behind him. On the completion of the truce with Saladin, the survivors of an infuriate war returned home; but in what condition!—not as they set forth, in all the splendour of chivalry—but ruined in fortune and health, and though numbers of splendid coursers must have formed part of the spoils taken at different times from the Saracens, yet few, if any, of these ever found their way to the British shores. Two horses of Eastern origin, purchased in Cyprus, were possessed by Richard, and are celebrated as having been unequalled for speed; besides these he had Arabians, but the shipwreck of his vessel and his imprisonment in Austria prove that neither these nor any of his effects reached England. Such was the fate of the third Crusade, nor was that conducted by Prince Edward, son of Henry III. (afterwards Edward I.), productive of any advantage.

It was most probably the paucity of fine studs of horses in England, at the time of the death of Richard Cœur-de-Lion, that induced John, who possessed scarcely one valuable qualification, to devote considerable attention to the improvement of the breeds of horses. A hundred chosen steeds were introduced from Flanders, a circumstance by which the heavier breeds would become benefited: and ultimately this monarch accumulated a stud of the most superb horses in Europe. During sub-

sequent reigns, Spanish barbs, gigantic Lombardy war-horses, or Destriers, and heavy Flanders horses were obtained, often at the cost of enormous sums of money, and thus gradually several distinct breeds or stocks would be produced, exclusive of the pony. Of these breeds one was the war-horse, fitted to bear a warrior in the heavy armour then worn, oppressive to the wearer, but more so to the horse, which was also in a great degree protected in the same manner. The principal requisites were vast power and endurance, not however to the exclusion of a certain degree of fleetness, combined with fire, courage, and noble action. We may perhaps see its representative in some of the higher-bred stallions of the massive clean-limbed draught race of the present day, with flowing mane, arched neck, powerful shoulders, round barrel and broad croup, or perhaps in some of the most noble and spirited of the larger coach-horses. The chief colours were black, bay (Bayard), and grey (Lyard, dappled grey; Sulyard, greyish white, in ancient heraldry); or white (Blanchard).

Besides this stalwart breed, there was evidently a lighter race, varying in qualifications and stature. Of

Hare-hunting. From Royal M.S. 2 B. vii.

this stock, some were serviceable for the road, possessing strength, activity, and endurance; others of still lighter contour, prancing palfreys, were used on occasions of show, or in various field-sports, as hawking, and hunting the smaller beasts of chase.

Horses of these lighter breeds were often termed running horses, and were matched to run races, a sport practised at Smithfield as early as the time of Henry II.,

Horses playing on the tabor.

though racing was not then what it is in modern days: nevertheless, it gave great satisfaction to the "sporting men" of the olden time, and it may be hoped superseded the brutal practice of baiting horses, at one time in vogue, and the puerile exhibition of ponies trained to beat on tabors, or sounding shields with their fore and hind feet, keeping time to the movements of the exhibitor and the accompanying music (see p. 173).

Another breed of importance in all times is the cart-horse. This breed, undervalued by warriors, nobles, and knights, would necessarily vary in qualities as circumstances might influence it; yet with the improvement of the other stocks would the old cart-horse become elevated, though perhaps in a slower ratio, into breeds which the agriculturist regarded with pride. It might be less showy and spirited than the heavy war-horse, but was equally powerful and more hardy.

In the reign of Henry II. an impetus was given to the improvement of the horse in our island; and that monarch, who paid no little attention to the subject, encouraged the importation of horses calculated to elevate our native stocks. Fitzstephen records the delight which the citizens of London took in the Smithfield races. Thus, then, after the exhaustion of horses in England, of which so many were drained to Palestine, King John gave the first stimulus to the improvement of the breeds of horses, which continued progressive through many reins. We learn from an edict respecting the regulation of the price of horses published by Richard II., that Lincolnshire, Cambridgeshire, and the north and east ridings of Yorkshire were then, as now, noted breeding districts.

When the civil wars of the houses of York and Lancaster commenced, and England was deluged with blood, it cannot be expected that in the midst of turmoil and dissension men should enter into pursuits and operations requiring personal security and general public tranquillity; consequently the various breeds of horses became neglected, the losses occasioned by war and rapine were not repaired, and a marked deterioration ensued.

Nor does it appear that any decided amelioration was attempted until the time of that unfeeling monarch Henry VIII., who formed a stud of horses and jennets from Spain, and issued several decrees relative to the stature of stallions and mares, the former to be not less than fifteen hands high, the latter not less than thirteen; and, moreover, that of these in every nobleman's park, a certain number should be kept for the purpose of breeding under the superintendence of the magistrates, who were enjoined at certain times to make a sort of survey of the stock in parks, commons, and pasture-lands, and destroy such as were below the standard, or were inferior and "unlikely" animals. The success of these laws, which, after the death of Henry VIII., were abrogated, is somewhat problematical. During the reign of Mary it cannot be doubted that the nobles derived horses from Spain, that country being open to England after the marriage of the queen with the Spanish prince (afterwards Philip II.); yet though a fine Andalusian or Asturian stock prevailed to a limited extent in the possession of the nobility, we have good reason for believing that the general breeds of the country were at a low par. Indeed, it is only within a few years, comparatively speaking, that the Cleveland bay, the Suffolk punch, and the modern Lincolnshire black, with the huge grey breed, became established in perfection.

We scarcely know what improvement in horses was effected during the reign of Elizabeth, but we suspect nothing of general importance. No doubt private individuals possessed fleet and well-bred steeds; for though the queen's cavalry was but indifferently mounted, still we read of *races* in her day, and learn that these were not only much in vogue, but carried on with such a spirit of betting as to have injured the fortunes of many of the nobility. Jarvis Markham, who wrote on the management of horses in 1559, the year after Elizabeth's accession to the crown, speaks of running-horses; but it would appear that the races at this time were rather the result of private matches made between gentlemen who rode their own horses than of a definite racing code or

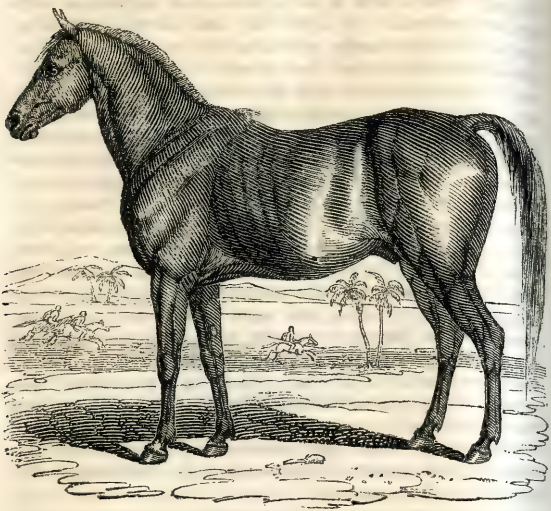
system carried on according to fixed and acknowledged regulations. Neither does it appear that the importance of racing (abstracted from any gambling) was appreciated; for we find that Lord Herbert, of Cherbury, in his 'Memoirs' (printed in 1764 by Horace Walpole, at his private press at Strawberry Hill), enumerates horse-races among the sports which he thought unworthy a man of honour. His words are: "The exercise I do not approve of is running of horses, there being much cheating in that kind; neither do I see why a brave man should delight in a creature whose chief use is to help him to run away." Lord Herbert lived in the reigns of Elizabeth, James, and Charles I., and his observations either prove that racing was ill conducted altogether, or are not worthy a man of sense; for though we most heartily disapprove of the gambling transactions of the turf, it must be confessed that it is to the establishment of races on definite principles under the jurisdiction of men of honour and wealth that the elevation of the horse in our island is due. In Lord Herbert's time, however, horse-racing was without system, and was, besides, most probably, a disorderly affair. It was in the reign of James I. that horse-racing assumed a definite character, and became conducted according to fixed regulations. The breed appropriated to this sport originally selected for speed, now became improved by Arab, Turkish, and Barbary admixture. James I. introduced the Arab, and purchased one of great celebrated from a merchant of the name of Markham for the then enormous sum of five hundred pounds; he also purchased a horse called the White Turk, bred on the north coast of Africa, from Mr. Place, afterwards stud-master of the Protector Oliver Cromwell. The value of these horses of Arab blood was at that time not rightly appreciated, the predilection being for large and bony steeds; nevertheless, James I. persevered in the ideas he had formed, proving that he understood horse-craft as well as king-craft. In his reign it was at Garterly in Yorkshire, Croydon in Surrey, and occasionally at Theobald's, near Enfield Chase, where the king resided, that the races were held. The

horses were regularly trained, and the weight to be carried by each regularly adjusted. The races generally were at that time termed bell-races, or bell-courses, the prize being a little golden bell, whence the expression, not yet quite obsolete, of "bearing the bell," that is, of carrying off the prize.

We may here notice two celebrated horses, the Helmsley Turk, introduced by George Villiers, first Duke of Buckingham, and the Morocco barb, by Lord Fairfax. The characters of the race-horse now began to be modified, and speed and mettle to be preferred to bone and stature.

Charles I., who patronized racing, established the course at Newmarket; it was also customary to have races at Hyde Park, but they do not appear to have been long continued. On the fall of Charles I. races were suspended till Charles II. came to the throne. This monarch was devoted to the turf, and sent his master of the horse to the Levant for the purpose of procuring mares and stallions of Arab blood. He appointed races at Datchet Mead while he resided at Windsor, revived the Newmarket course, and entered horses in his own name; the prize-bell was exchanged for a silver bowl or cup of the value of a hundred guineas, and upon this royal gift the name and pedigree of the winning horse were usually engraved. During the subsequent reigns of James II., William III., and Anne, racing continued, and received royal patronage. It was in the reign of the latter sovereign that the celebrated Darley Arabian, bred in the deserts of Palmyra, was introduced. This horse became the progenitor of some of the most renowned of our racing stock; he was the sire of Flying Childers, and the founder of the Eclipse progeny. At a subsequent period Lord Godolphin's barb, generally called the Godolphin Arabian, contributed to the celebrity of the English racer, and founded the Matchem stock. We may also notice the Byerley Turk, the origin of the Herod blood, to which belonged High-flyer, accounted the best horse of his time in England. From these and other Eastern sources, Barbs, Arabs, and

Persians, have descended a stock unequalled by any in the world for spirit and fleetness.



Anglo-Arab Horse.

Among racers remarkable for extraordinary speed, we may notice the following: Bay Malton, the property of the Marquis of Rockingham, ran at York four miles in seven minutes and forty-three and a half seconds. Flying Childers, supposed to be the fleetest horse ever bred, has been known to move eighty-two feet and a-half in a second, that is, nearly at the rate of a mile in a minute. On the long course at Newmarket, which is four miles and about three hundred and eighty yards, he went the distance in seven minutes and a-half; and on the short course, three miles, six furlongs, and ninety three yards, he ran the circuit in six minutes and forty seconds.

Eclipse was supposed to be the fleetest horse next to the Flying Childers, but was perhaps not much superior to Firetail, who in 1772 ran a mile in one minute and four seconds. In 1786 Mr. Hull's horse Quibbler, ran twenty-three miles round the flat at Newmarket in fifty-seven minutes and ten seconds,—a most extraordinary instance of speed and endurance. At the present time England can boast of a splendid collection of high-bred racers; yet we do not often hear of such extraordinary speed being displayed by any as by the horses just alluded to, and we attribute this to the practice of over-forcing the powers of the animals while young, in order to bring them, at the age of three years, upon the turf. Let it be remembered that the severe processes of breaking and training are completed in the second year; that before the noble creature has its powers fairly developed, its strength and speed are taxed to the uttermost; it is urged on in the race, strained in every limb, and worn out before it has attained maturity. It is broken in constitution, while young, by a premature exaction of intense muscular exertion, and unless the practice be abolished, a degeneracy in the breed will infallibly be the result. What but a degenerate progeny can be expected from parents broken down in constitution by heavy toil before maturity?

With the elevation of the thorough-bred race-horse is

Race Mare and Foal.

connected that of the modern hunter, from which great speed, power, and endurance are especially required. The chase of the stag and fox is now carried on at a killing speed; the impetuous rider urges his horse to the most terrific leaps, nor checks his pace over heavy ground, wet, fallow, or ploughed lands, miry lanes, and heaths rough with furze and bramble. Gallantly and well through many a long burst is the noble animal expected to bear perhaps a heavy rider; and excited by the sport strenuously does he exert every muscle in his sinewy frame. The best hunters are nearly thorough-bred, perhaps seven-eighths racer blood, and by a judicious system of breeding, enormous strength, bone, and muscle have been brought to combine with fire and fleetness. Such are the steeds

> ——— "more fleet than those
> Begot by winds,* or the celestial breed
> That bore the great Pelides through the press
> Of heroes arm'd, and broke their crowded ranks.'
>
> *Somerville.*

The subjoined anecdote was recently communicated to us by Mr. Comport, of Rochford, Essex. It relates to the feat of a hunter in the possession of that gentleman's late father, who was an ardent lover of the chase:

"In the winter of 1812, the harriers of Mr. Thomas Comport, of Malmains Hall, Stoke, near Rochester, came upon a buck which had escaped out of the Earl of Darnley's park, at Cobham, and ran it upwards of twenty miles right out. It is not my object however to describe this chase, which was a most surprising one, but to relate an incident which occurred in the course of it. Mr. Comport's horse, a gelding, upwards of seventeen hands high, equal to eighteen stone, which was about the weight Mr. Comport rode, in the course of this remarkable chase, came to a fence which was unknown to Mr. Comport, consisting of what Mr. Comport thought to be merely a hedge and ditch, the hedge being upon a high bank, and the ditch, about six feet wide, coming

* The poet here alludes to the ancient fable respecting the Lusitanian mares impregnated by the Favonian wind. (See Virgil's *Georgics*, lib. iii. l. 272, *et seq.*, and Pliny, viii. c. 42.)

first. Mr. Comport rode the horse at the fence, and the horse took it in grand style, and was in the act of covering the fence, when to Mr. Comport's surprise, and apparently that of his horse, he discovered a wide ditch also on the other side of the hedge: the plunging into the second ditch appeared inevitable, but to Mr. Comport's astonishment the horse by some means checked his leap, and, doubling his fore legs under him, came on the bank on the opposite side of the hedge, and taking another spring, cleared the second ditch safe and wide. Mr. Comport, who is lately dead, and who had followed the hounds for more than forty years, has often been heard to declare that this leap was the most extraordinary he had ever seen or heard of."

Certainly both the horse and the rider must have possessed an extraordinary degree of nerve and presence of mind.

Ireland boasts of a fine and high-bred race of hunters, which possess immense fire, courage, strength, and speed. These horses are more angular than the English, and perhaps in general are not so well ribbed up, but are nevertheless capable of tremendous exertion. Over the high banks and limestone walls dividing the fields, the Irish hunter leaps with singular address; instead of attempting to clear such obstacles by a flying leap, as would the uninitiated English hunter, he bounds to the top, and striking the wall first with his fore then with his hind hoofs, springs down, executing the feat with the agility of a deer.

The following excellent observations on the treatment of the hunter, we extract from the 'Penny Cyclopædia.' The principles laid down apply to all horses from which quick and laborious work is exacted, as the roadster and stage-coach horse:—

"During the sporting season the hunter is well fed, and with that kind of food which contains a great proportion of nutriment in little compass. A small quantity of hay, rarely more than eight or ten pounds per day, is allowed, and less than that on the day before work. The quantity of corn may vary from fourteen to sixteen pounds

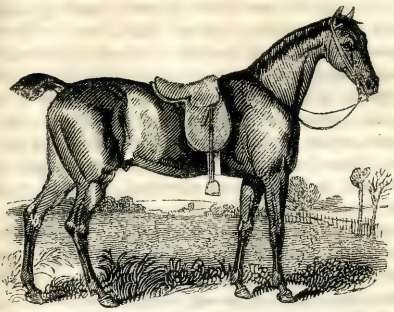
daily. There is a prejudice in most hunting stables, and probably well founded, against chaff, and it is seldom that the beans and oats are bruised. A bran-mash is given after a day of more than usual fatigue, and is serviceable at other times, when there has not been more than ordinary work, provided that at least two days are suffered to elapse before the horse is again taken into the field.

"No horse should be urged on after he has exhibited unequivocal symptoms of distress, such as a drooping pace, a staggering gait, a heavy bearing on the hand, a rapid inspiration like a hurried sigh, and a peculiar convulsive action of the diaphragm, as though the heart were violently beating against the side. The loss of blood, the administration of some cordial medicine, and slow leading to the nearest stable, are the best restoratives at the moment of distress; although the cordial would be absolutely destructive a few hours afterwards, when inflammation had commenced.

"The hunting season having passed, the horse used to be turned into the field as soon as the grass had begun fairly to sprout, and there, with his feed or two feeds of corn daily, and his hovel, into which he might retreat from the sun or the storm, he remained until the middle of June, or the flies began to be troublesome. It was delightful to see how much he enjoyed this short period of liberty; and well had he earned it. Of late years however it has become the fashion to confine him to his box, whence he stirs not except for an hour's walking exercise on the road, until he is taken into training for the next winter's business.

"Nothing can be so erroneous or cruel as this. There are few horses that have not materially suffered in their legs and feet before the close of the hunting season. There cannot be anything so refreshing to their feet as the damp coolness of the herbage which they tread at that period, and there is no physic which so safely and effectually as the spring grass carries off every humour that may be lurking in their frame.

"The training of the hunter for his work is a simple affair. It is, by means of exercise and of physic, getting



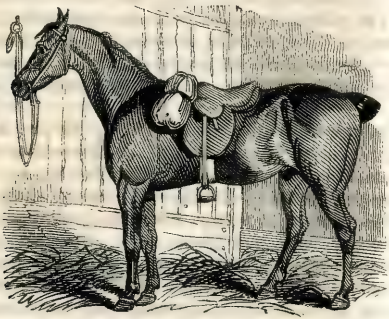
English Hunter.

rid of all superfluous fat and flesh, without debilitating him. The physic is useful; it is indispensable; but the chief thing is gradually to accustom him to the exertion of every power that he possesses, without too much hurrying his breathing, or overstraining or injuring him."

The horses bred in the present day for the road and the light cavalry, are from half to three quarters pure blood; such were also the horses used for the lighter stage-coaches, more particularly on certain lines of road before the powers of steam had rendered their services unnecessary. It is not many years since that we ourselves came up from Brighton to London in five hours, and splendid were the horses harnessed at each relay. It was not however on every road that such horses were kept.

There was a time, not very long ago, when coaches were few, not as now, because railroads are laid down in every direction, but because the roads were almost impassable by such modes of conveyance, and when men travelled almost exclusively on horseback—not without a just fear of the mounted highwayman. Our readers will remember Sir Walter Scott's account of the journey

of young Osbaldiston to the north, and his adventure with Morris, in the novel of 'Rob Roy.' It is a true picture of the mode of travelling in the early part of the eighteenth century. The fact is, that when the internal commerce of England began to be developed, good roads were few—nor was it till long afterwards that they were constructed—and a well-seasoned roadster was an important animal; far more so than in these modern days, when no one would dream of travelling from London to York on horseback. The old roadster in the time of our great-grandfathers was a stout muscular horse, with firm-set limbs, and good action—he might have been half-bred, or between a three-parts blood-horse and one of the light draught breeds—and was capable of enormous fatigue. It was less of rapidity than power of endurance that was required, and upon this principle did the breeder modify the old roadster.



Old Roadster.

Though the following directions for the treatment of the roadsted saddle-horse may not be much needed, yet as they apply to the gig-horse of the traveller, which is often as high-bred, or nearly so, as the hunter, it may not be amiss to recite them.

"The horse should undergo some degree of training

as to the pace, the distance, and the burden. When there has been no preparation, the stages must at first be short and the pace gentle. For a journey of three hundred miles, the horse may travel from twenty to twenty-five miles a day, resting on the Sunday, and doing the work in two stages, at the pace of six miles an hour. This requires a seasoned horse, and the number of working hours per day is about four.

"The *watering* of the horse is a very important but disregarded portion of his general management. The kind of water has not been sufficiently considered. The difference between what is termed *hard* and *soft* water is a circumstance of general observation. The former contains certain saline principles which decompose some bodies, as in the curdling of soap; and prevent the solution of others, as in the making of tea, the boiling of vegetables, and the process of brewing. It is natural to suppose that these different kinds of water would produce somewhat different effects on the animal frame, and such is the fact. Hard water, freshly drawn from the well, will frequently roughen the coat of the horse unaccustomed to it, or cause griping pains, or materially lessen the animal's power of exertion. The racing and the hunting groom are perfectly aware of this; and so is the horse, for he will refuse the purest water from the well, if he can obtain access to the running stream, or even the turbid pool. Where there is the power of choice, the softer water should undoubtedly be preferred.

"The temperature of the water is of far more consequence than its hardness. It will rarely harm if taken from the pond or the running stream, but its coldness when recently drawn from the well has often been injurious. It has produced colic, spasm, and even death. It should therefore be exposed for some hours, either in the stable or in some tank.

"There is often considerable prejudice against the horse being fairly supplied with water. It is supposed to chill him; to injure his wind, or to incapacitate him for hard work. It certainly would do so, if, immediately after drinking his fill, he were galloped hard, but not if he

were suffered to quench his thirst more frequently when at rest in the stable. The horse that has free access to water will not drink so much in the course of a day as another who, to cool his parched mouth, swallows as fast as he can, and knows not when to stop.

"When on a journey a horse may with perfect safety be far more liberally supplied with water than he generally is. An hour before his work commences he should be permitted to drink a couple of quarts. A greater quantity might probably be objected to. He will perform his task far more pleasantly and effectively than with a parched mouth and tormenting thirst. The prejudice both of the hunting and the training groom on this point is cruel as well as injurious. The task or the journey being accomplished, and the horse having breathed a few minutes, another quart, or even two, will be delightfully refreshing to him, and will never do him harm. His corn may then be offered to him, which he will readily take; and before he has eaten the whole of it two or three more quarts of water may be given.

"Towards the close of the day the speed of the traveller should somewhat abate, and the horse should arrive at his resting-place as dry and as cool as circumstances will permit. If he is hot he must be walked about awhile, or the perspiration will return in the stable. If he is wet he must be carefully rubbed dry. The sooner this is done the better; and after he is clothed, watered, fed, and bedded, he should as soon as possible be left to his repose.

"The horse of quick work, the stage-coach horse and the poster, should be allowed as much as he will eat, care being taken that no more is put into the manger than he will readily dispose of. The quantity actually eaten will depend on the degree of work and the natural appetite of the horse, but it may be averaged at about sixty-six pounds of chaff, seventeen and a half pounds of beans, and seventy-seven of oats per week. When the work is unusually hard, the quantity of oats may be diminished, that of beans increased, and a portion of barley added."

We may now turn to the slow draught horse, of which

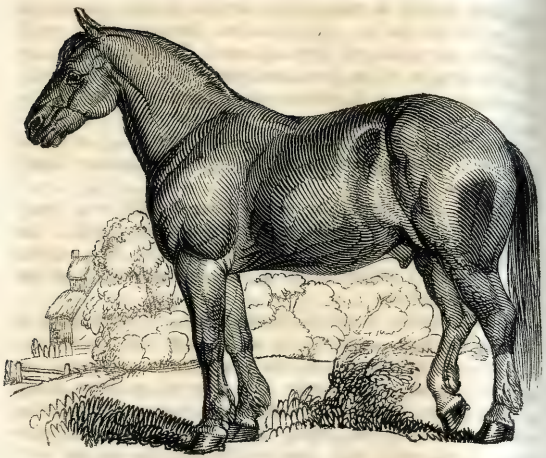
the finer breeds in our country are decidedly unequalled by any in the world. It is true that between these noble animals, the giants of their race and the half-starved ill-formed drudge of the costermonger's cart, there are many gradations, and these lower and neglected animals serve to show us what the old cart-horse was, till by care and various crossings it became elevated into the Cleveland bay, the Suffolk punch, and the huge Lincolnshire black, or mottled grey.

The Suffolk punch is now seldom to be seen pure, being much crossed with other breeds, to which it has imparted compactness of form and power. We suspect that it greatly contributed to the establishment of our best old roadsters.

With respect to the Cleveland bay, it is confined in its greatest purity principally to Durham and Yorkshire; it is one of the sources of our best hunters, crossed repeatedly by the blood-horse, and a breed between it and a blood-horse of sufficient bone and stature constitutes the splendid coach-horse, with arched neck, and noble bearing. It is, moreover, one of the sources of our best hackneys and gig-horses.

The Lincolnshire black exceeds all other breeds in stature and massiveness, and is a magnificent animal. Its perfection is to be attributed to the Flander's horse, and it is of this admirable mixed breed that the teams in the distiller's and brewer's waggons in London are chiefly composed. No one can behold them without being struck with their appearance. Their strength is prodigious, and many stand seventeen hands in height, or even more. There is an enormous grey breed, exhibiting the same power and stature; it is evidently the result of a cross between the ancient grey stock and the huge Flemish. The largest and heaviest horses we ever saw on the continent were mottled greys. A breed between the heavy Lincolnshire horse and the old Suffolk punch is esteemed for superior activity.

Massive and huge as are the noble dray-horses which the wealthy brewers and distillers of London pride themselves in displaying, it is astonishing to observe how



English Cart-Horse.

obedient and gentle they are. The voice of the driver is sufficient to control or direct them, and they often display remarkable intelligence.

The ordinary cart-horses of our country, and those employed in the labours of the farm, are smaller, lighter, and more active than the huge dray-horses above described, and vary as to their degree of excellence, and the amount of work they are capable of undergoing. A good cart-horse will work eight or ten hours daily for six days in the week —the pace will vary from two miles and a half to three and a half per hour, according to the weight, which, besides the cart (seven or eight hundred weight), should never exceed twenty-four hundred weight. All beyond this in weight, or in the time of working, is oppressive and cruel. In ploughing, the severity of the work is dependent on the pace, the nature of the soil, and the breadth of the furrow-slice. In ge-

neral the pace is not more than at the rate of a mile and a half or two miles an hour—the furrow varying from eight inches to eleven. The distance travelled is usually from twelve to sixteen miles daily during the season, nor will this labour be too much either for the horse or man.

"The agricultural horse," says an able writer, "is seldom overworked, and on large farms is generally well fed; perhaps, in many cases, too much above his work. This, however, is an error on the right side. A very slight inspection of the animal will always enable the owner to determine whether he is too well or not sufficiently fed. The size of the horse, and the nature of the work, and the season of the year, will make considerable difference in the quantity and the quality of the food. The following accounts will sufficiently elucidate the general custom:—'Mr. Harper, of Bank Hall, Lancashire, ploughs seven acres per week, the year through, on strong land with a team of three horses, and allows to each weekly two bushels of oats, with hay, during the winter six months, and during the remainder of the year one bushel of oats per week, with green food. Mr. Ellman, of Glynde, in Sussex, allows two bushels of oats, with pease-haulm or straw, with but very little hay, during thirty winter weeks. He gives one bushel of oats with green food during the summer.'* There is very little difference in the management of these two gentlemen, and that probably arising from circumstances peculiar to their respective farms. The grand principles of feeding with reference to agricultural horses are, to keep the animal rather above his work, to give him good and wholesome food, and, by the use of the nose-bag, or other means, never to let him be worked more than four or five hours without being baited."

Formerly a breed of pack-horses existed in England, and most of the internal traffic of the country was carried on by their means. Since the improvement of our roads, however, the pack-horse has nearly disappeared,

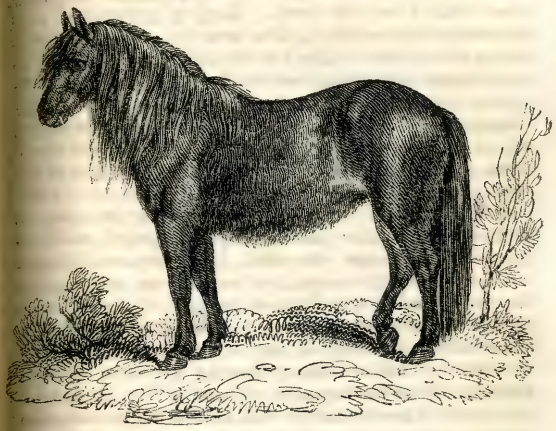
* Agricultural Survey of Sussex, pp. 378, 381.

lingering only in the more barren and hilly districts. We have seen them in Derbyshire. These horses, of small size, but active and hardy, used to travel in single file, headed by a leader furnished with bells, so that in the darkness of night, or enveloped by the dense mist which rests so often on the mountain side, the troop are enabled to follow their experienced leader, or if scattered, to rejoin the procession. In Derbyshire, or rather in the Peak district of that county, these pack-horses carry lime and sand. They are, however, less frequently to be met with than formerly. Nevertheless, during a late visit to Buxton we saw several strings of pack-horses, traversing the rough roads in the vicinity of that village. These Peak horses are invariably "knock-kneed" or "cow-kneed" on the hinder limbs, and, if we may be permitted to judge, are the relics of a very ancient unimproved breed. In attestation of the once universal employment of the pack-horse, we find roadside inns and houses of public entertainment in various parts of the country thus designated, with an appropriate sign over the door. At Turnham Green, near London, for example, an inn of long standing retains the name of 'The Pack-horse,' and by its title calls to mind the time when the roads around the metropolis, impracticable by wheeled carriages, were traversed by cavalcades of laden horses, bearing packages of merchandise. (See Shakspere's 'Henry V.' Pt. i. Act ii.)

We have already stated that from a very early and indefinite period a race of hardy ponies existed in our island. Such were the steeds of the ancient Britons at the period of the invasion of the Romans; and from that time to the present various breeds have maintained their existence in the kingdom; some of them remarkable for spirit and beauty. It is to be observed, however, that the mountainous, wild, and barren districts are their special nursery; and consequently Wales, the Shetland Isles and Orkneys, the Isle of Man, Dartmoor, and the New Forest are noted for their ponies.

The Welsh pony is often a model, and is as active and spirited as it is beautiful, a small head, a large full

eye, short sharp ears, high withers, a deep yet round body, short joints, flat legs, and small round hoofs, are the characteristics of the best breed. Free and vigorous in their actions, these miniature horses are endowed with great powers of endurance, and in their own mountain-home will tire out roadsters of far larger stature; in fact their strength is much greater than might at first be supposed.



Welsh Pony.

In the Orkney and Shetland Isles the pony is still less in size than the Welsh, but is often very handsome. The shoulders, however, are apt to be thick and low, yet the limbs are well knit, and the strength and spirit of the little creatures are astonishing. Sir Walter Scott's portraiture of these ponies, in his novel of 'The Pirate,' is very characteristic; they are in fact only semi-reclaimed in their "misty islands."

In Scotland a hardy race of ponies is very generally used. Dandie Dinmont, his pony Dumple, and his dogs

Mustard and Pepper, form a group familiar to all our readers.

An original contributor to the 'Penny Magazine,' gives us, in his 'Notes on the New Forest,' the following interesting observations on the half-wild ponies bred in that district. Here, he says, "we have the horse returned almost to a state of nature, and, true to all such returns, possessing, in his small dimensions and under his shaggy exterior, spirit and strength for which we may seek in vain in those animals of the species which have been bred to beauty, to symmetry, and to momentary speed, at the expense of their more permanent and more valuable qualities. The New Forest horse is, indeed, quite a study to those who wish to see the natural development of this most useful animal, and to learn in what way and to what extent his natural qualities are broken in upon, even by what is considered the most skilful and the most successful breeding.

"The New Forest horses are not bred for size, symmetry, or any other particular character, but are left, as we may say, to the general development of all the properties of the horse, good or bad, as man may esteem them. These horses belong to the borderers on the forest, who have rights of pasturage, or to the cottagers. Until they are fit for the market, the New Forest horses are left to shift for themselves as they best can; and though they are somebody's property, they are not property which is cherished or even decently protected. In summer they show that instinct upon which the domestication of the horse depends, by associating together in considerable herds; and as they are tolerably well fed and correspondingly frisky at this season, the sight of them scampering about through the forest, with a freedom and glee quite unknown among home-bred horses, is exceedingly pleasant. In winter the scantiness of the pasture forces them to break up their associations, and they live dispersedly, generally in the cover of the trees, adding the withered leaves, especially of the beech, to the other produce of the soil; and at this season of the year they are exceedingly shaggy in their appearance,

though the cleanness of their limbs and the fleetness of their movements are not a jot abated. In the humid parts of the forest they often suffer severely when the winter is peculiarly inclement, because the withered grass is flooded, and the frost seals it up under a coating of ice; but when they can find their way to the elevated and dry moors, upon which no trees will grow, they find a winter's repast in the furze, with which these are covered in all situations where the soil is of a quality superior to the cragsand. In managing this prickly food, which, by the way, is exceedingly wholesome even for domesticated horses, they show some science, if the conduct of animals can be called by that name: they do not attempt to grapple with the furze as it stands bayoneted in a state of nature, but use the fore-foot in pounding it; and when it has efficiently performed this operation, they eat it, not only with impunity, but with apparent satisfaction. This affords a very useful lesson to man, and it is one which is sometimes followed; for, in many districts where furze is abundant, it is bruised in mills or by other means, and makes excellent green food for horses during the winter months.

"In general the New Forest horses are captured and sold for slaves, as one would say; that is, for the performance of labour at too early an age: for it seems a law of nature that when these animals are left to themselves, they are much longer in arriving at maturity than when they are forced by what may be termed artificial means. This peculiarity of the law of nature does not, however, impair the usefulness of the animal or shorten the period of that usefulness; for when these forest horses are allowed to run wild till they are about seven or eight years old, their constitutions are fully established, and they can undergo much and severe labour far beyond the ordinary age of artificially reared horses. It is true that, when allowed to run wild so long, these horses are difficult to catch, and in most instances more difficult to train; but when they are once trained, they are exceedingly valuable—hardy, swift, sure-footed, and seldom if ever subject to disease. In their manners they

bear some resemblance to the wild horses of South America, of which such a lively description is given by Head, in his 'Rough Notes on the Pampas;' and, perhaps, as the climate of the New Forest is somewhat different from that of the plains of South America, they are superior both in strength and in spirit. The forest clowns who are employed in capturing the horses sometimes attempt to take them with a noose, something after the same manner as the Gauchos do in South America; but their noose and their mode of using it are very clumsy and bungling as compared with the American lasso.

"According to the ordinary estimation of those who are fond of fancy horses, the New Forest horse is by no means beautiful; but he is not a little picturesque, and harmonises well with the scenes in which he is found. His tail and mane are at all times copious and flowing; and during the winter months his coat is somewhat shaggy. When, however, he is taken into domestic service, well fed, and sheltered from the weather, his coat becomes habitually sleek, while the abundance of the mane and tail remain. Perhaps one of the most objectionable points, and it is not a general one, is the length of the body as compared with that of the legs; but, notwithstanding this, the back of the animal is strong; and though his head is rather heavy in appearance, his neck is strong, and he carries it well."

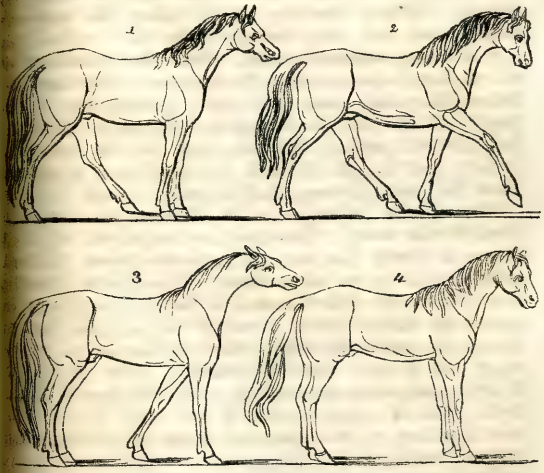
These ponies we regard as the descendants of the ancient British stock. That they are superior to the feral horses of South America, as the writer seems to intimate, we can by no means admit. To enter into details of all the breeds (interblended as they are) of the horse within the British Isles, is out of the question, and to record the numerous extraordinary performances of the racer, the hunter, and the roadster, with which the Sporting magazines are replete, is less the part of a zoologist, than of a man devoted to the turf. It is to the natural history of this noble and eminently useful animal that our pages are devoted.

The movements of the horse, and the arrangement of

the bones of the limbs, have already been noticed; the following additional remarks, selected from one of a series of interesting papers in the 'Penny Magazine' for 1844, on the Locomotion of Animals, are worthy of consideration.

"Quadrupeds (says the writer) move their fore-legs either singly and successively, and in various orders which correspond to the different velocities of the animal. These different kinds of movement of the legs are known under the terms walking, trotting, galloping, and leaping.

"As everybody is familiar with the horse, we shall select that animal to illustrate the manner in which the locomotion of quadrupeds in general is effected. The subject possesses more or less interest to most persons, yet of the millions of people who are in the daily habit of seeing the horse in motion, how very few consider



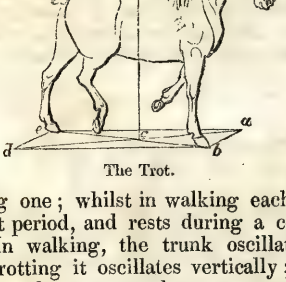

Figures illustrative of action of Horse.

the means by which the movements of that valuable animal are performed. Let us suppose the horse to be standing on its four legs, as in *Fig.* 4, and that it commences the walking step by moving its left hind-leg, as in *Fig.* 1; this having been advanced and placed on the ground, the right fore-leg is next raised and advanced, as in *Fig.* 2, and having been placed on the ground, the right hind-leg performs a similar movement, and the legs of the animal are in the position *Fig.* 3; lastly, the left fore-leg is advanced, and placed in the position of *Fig.* 4. These four movements complete the step, and during the series the centre of gravity of the animal passes over a corresponding space. This is the order in which nearly all quadrupeds move their legs in slow walking; but some authors do not coincide in this statement, amongst whom is Borelli, who has figured the horse as moving both the legs on the same side at once in walking, as some horses are taught to do in the *amble*, and as the giraffe is said to do naturally.

"A little consideration will clear up the error into which Borelli and others have fallen respecting the horse. It will be observed from the foregoing statement that the left hind-leg moves first; the right fore-leg second; the right hind-leg third; and the left fore-leg fourth. Now if we do not analyse this order of motion from its commencement, we may easily be deceived; for in walking by a horse, the two legs appear indeed to move together on the same side, but this arises from the continuity of the series of movements, which we find begins with the left hind-leg, and terminates with the left fore-leg; being in like manner the movement of the right fore-leg followed by that of the right hind-leg; which continuity of movement, if not carefully discriminated, gives an impression that the animal moves both legs on the same side simultaneously.

"*The Trot.*—In trotting, the horse moves its legs in pairs diagonally: thus, if the legs *a d* (*Fig.* 5) be raised and advanced first, the legs *b e* will be raised the in-

stant those designated by *a d* reach the ground. On the other hand, when the legs *b e* are raised before the legs *a d* reach the ground, there is a minute interval during which all the legs are raised above the ground at the same time. In trotting each leg moves rather more frequently in the same period of time than in walking, or nearly as 6 to 5. But the velocity acquired by moving the legs in pairs, instead of consecutively, depends on the circumstance that, in trotting, each leg rests on the ground a short time, and swings




The Trot.

during a long one; whilst in walking each leg swings during a short period, and rests during a comparatively long one. In walking, the trunk oscillates laterally, whereas in trotting it oscillates vertically; but in each of these kinds of movement there appears to be a slight motion of the trunk of the animal both laterally and vertically.

"It may be observed that the vertical line traversing the base of support passes through the horse in such a manner as to leave by far the greater part of the weight of the body to be supported by the two fore-legs.

"*The Gallop.*—In galloping, the horse adopts three different methods of using its organs of locomotion, which are distinguished by the number and the order in which the feet reach the ground.

"First order of motion—When a horse begins to gallop on the right, the left hind-leg reaches the ground first; the right hind-leg and left fore-leg next follow at the

same time, and the right fore-leg last. This is called the gallop of three beats.

"Second order of motion.—If the four legs reach the ground in succession, the left hind-foot reaches the ground first, the right hind-foot second, the left fore-foot third, and the right fore-foot fourth. This is the gallop of four beats, sometimes denominated the canter. This order of movement is not adapted for great speed, but is an agreeable motion in riding on horseback for ladies, or for gentlemen who ride lazily, or badly.

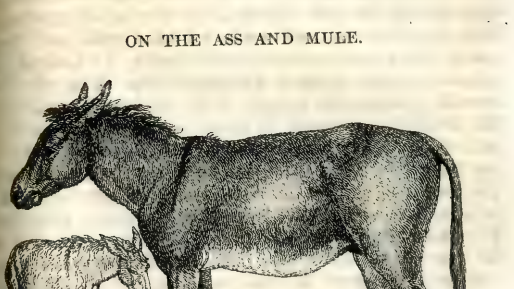
"Third order of motion.—In this kind of action the horse moves the legs in the same order as in trotting; that is, the left hind and right fore feet reach the ground simultaneously, then the right hind and left fore feet. This is the order in which the feet move in racing, and whenever the greatest speed is required. It is called the gallop of two beats.

"*Leaping.*—In leaping, the horse raises the fore-legs from the ground, and projects the body upwards and forwards by the hind-legs alone. It is well known that they leap rivulets, hedges, and ditches, with great ease, even under the burden of heavy riders; but to accomplish this an enormous expenditure of muscular action must be required; since the muscles which produce the effect act at a great mechanical disadvantage.

"Horses which are constituted for great speed have the shoulder-joints directed at a considerable angle with the arm. Saintbell has given the relative proportions of the several parts of the skeleton of the celebrated race-horse Eclipse, together with the angles of inclination and range of motion belonging to the joints of the legs. According to his account, that horse, when galloping at liberty, and at its greatest speed, passed over twenty-five feet at each step: these strides were taken two and a half times in a second, being at the rate of about four miles in six minutes and two seconds, or forty miles in an hour and twenty seconds."

## CHAPTER VII.

### ON THE ASS AND MULE.



Domestic Ass.

From the contemplation of the horse in a state of subjection to man, let us turn to that of its humble relative the ass. In our country, at least, this patient, serviceable beast is almost uniformly treated with contempt and even cruelty; it is neglected and undervalued, yet to the poor but industrious cottager it is an animal of no mean importance. We agree with Mr. Bell that it is "obstinate and stubborn," "indefatigable and enduring in labour," "the drudge of man," and "sunk in abject and hopeless slavery;" but *not* that it is "endowed with very limited intelligence." Who that has marked the lively ass-colt with its picturesque head and dark bright eyes gambolling

around its dam in all the exuberance of animal buoyancy, before "sharp misery has worn it to the bone," and blows and starvation have crushed its energies—who, we say, that has marked this picture, so worthy of Landseer's pencil, would say that deficiency of animal intelligence was its inborn characteristic? Who that has seen the dam defend her colt from the worrying dog, striking with her fore-feet and ready to seize with her teeth, would charge the creature with apathy? Indeed, the talented writer alluded to admits that these despised animals occasionally exhibit a far higher character than that ordinarily assigned to them, adding, "the most remarkable instance of this kind within my own knowledge was that of an ass in the possession of an ancestor of mine who from age and disease was obliged to give up riding on horseback and betake himself to the easier exercise of this animal's more gentle paces. *General*, for that was the name of the ass in question, was of an unusual stature —at least for those bred in this country. His pace was easy and free, but swift perhaps beyond example, and many times before my grandfather obtained him he had been in at the death after a tolerably hard fox-chase. Matches had often been made, and asses of unusual power and fleetness had been placed against him; but he never met with a competitor. He was docile, also, and gentle, and having survived his master, to the comfort of whose latter days he had essentially contributed, he spent the remainder of his life in ease and idleness, and at his death was buried with due honours in his own little paddock."

Instances of great docility, not unmixed with considerable spirit, in the ass, have come under our own notice; we have known this animal open the fastenings of doors and gates in order to free itself and rejoin its companions, displaying no little skill and perseverance in the accomplishment of the work. When hampered by fetters, as we often see it in lanes or on large commons, the address with which it contrives to hobble along, while at the same time it does itself no injury by passionate struggles which would be both painful and unavailing, cannot have

been unobserved. All this is attributed to dullness and apathy; we should rather consider this caution and good management under difficulties, as resulting from prudence and sagacity. Let it be remembered that the brain of the ass is proportionably larger than that of the horse, we believe nearly in the ratio of eight to five.

The memory of the ass is very retentive, and it seldom or never forgets the intricacies of a road once traversed; this animal has been known to return voluntarily from a great distance over most toilsome paths, and after a considerable absence, to its old home; thus evincing local attachment, or even attachment to some particular person, no less than a union of memory, circumspection, and boldness. The ass refuses to move if its eyes be covered—a circumstance in accordance with the feelings of a quadruped destined by nature to traverse irregular and precipitous paths, where a keenness of vision is requisite in order to ensure safety. Again, when overloaded, this animal hangs its head, slouches its long ears, and assumes that stolid look which is considered, but erroneously, as characteristic of stupidity. With a heavy burden it can, indeed, travel very far; but it must go its own pace, for it is unfitted (as a general rule) for sudden and rapid exertion, and when fairly overtasked it can only be urged forward by most unwarrantable and barbarous severity of chastisement. In this respect it differs widely from the horse, of which the generous self-devotion to the will of man, as it is called, frequently impels it to exert its powers until it drops dead. Which kind of conduct wins the most admiration from man is not a matter of doubt, but which evinces the greater share of real wisdom and sagacity is quite another matter.

So far, then, do we contend against the correctness of the prevailing ideas entertained respecting the innate stupidity of this persevering, useful, and, in England, brutally treated animal, the value of which in other countries is more justly appreciated. England, we may add, is by no means a congenial residence for the ass—neither the climate nor the productions seem thoroughly suited to its constitution; here it is degenerated, and dis-

plays, but in a low degree, those qualities which render it, and have rendered it, time immemorial so much in request in Western Asia. In fact, the ass has radiated from its original nursery more slowly than most other domestic animals. Aristotle observes, that in his time there were no asses in Pontus, Scythia, or in the country of the Celts (France and Germany); and as late as the reign of Queen Elizabeth the ass was either extremely rare or not extant in our island.* Nevertheless, the ass was domesticated, as we have every reason to believe, at an epoch prior to the horse: it is enumerated among the riches of the patriarchs, and when the horse was in use among the Israelites and other nations of Syria it continued the ordinary riding-beast—the beast of civil life, in contradistinction to the horse, which was more especially appropriated to war. With respect to the origin of the domestic ass, most writers refer it to the onager or koulan; but it is not improbable that other species interbreeding with this may have contributed to the modifications which the domestic ass from a remote period appears to have presented. The ass, however, has never lost the indications which prove that the original stock was destined by nature for a dry rugged mountainous country, destitute of luxurious humid plains, abounding with succulent vegetation. The hoofs, unlike those of the horse, are long, concave beneath, with extremely sharp rims, and admirably adapted for treading with security on slippery rough declivities, which, as experience has fully taught, are ill-suited for the round flat hoof of the horse. The shoulders are comparatively lower and the croup higher than in the horse, and the animal can better support a weight thrown partially on the croup or hip-bones than when placed behind the withers sustained by the dorsal vertebræ; in ascending or descending steep rugged paths the pressure of the weight on the croup would, we think, be the least disadvantageous to a beast of burden.

* In the time of Ethelred the ass was known in England, but was rare and costly, and appears to have become in process of time extinct.

The ass loves to roll itself in the dust of dry roads or sandy places, as if to announce its desert-home of ancient days; it prefers the dry and prickly thistle and rough coarse herbage to succulent pasturage, and is patient of thirst, drinking but little, and then only sipping from the surface, which it merely touches with its lips. It dislikes wet or marshy ground, and will even avoid a road-side puddle, as if disliking to tread in the wet. The skin is hard and dry, and very seldom, if indeed ever, is the hair to be seen streaming with perspiration. The skin is far more insensible than that of the horse, and consequently a slight goad used mercifully is far better than the whip for stimulating the animal into action, while the cudgel, the blows of which injure muscles and bones, is only to be looked upon as the instrument of a merciless ruffian.

The ass is about four years in coming to maturity, and will live to a considerable age, sometimes more than thirty years. In Brettell's description of the Isle of Wight there is an account of one which drew up the water in the deep well of Carisbrooke Castle, and which worked daily at the wheel "for the space of fifty-two years, and even then died in perfect health and strength by accidentally falling over the ramparts of the castle. One of its successors was a pensioner of the Duke of Gloucester, uncle of George III., who settled on it an annuity of a penny loaf a day—a bounty which it enjoyed for a long period of years." Several other instances of longevity have been noticed. The female ass goes eleven months with young, and seldom produces more than one foal at a birth.

The milk of the ass, which contains much sugar, has been long used by persons of consumptive habits or delicate health, and no doubt with beneficial effects, as it is capable of being digested by stomachs unequal to the task of assimilating the richer milk of the cow. According to Parmentier and Desyeux, the properties of the milk of our herbivorous domestic quadrupeds may be placed in the following tabular series :—

| For Butter. | Cheese. | Sugar. | Whey. |
|---|---|---|---|
| 1. Sheep. | 1. Goat. | 1. Ass. | 1. Ass. |
| 2. Cow. | 2. Sheep. | 2. Mare. | 2. Mare. |
| 3. Goat. | 3. Cow. | 3. Cow. | 3. Cow. |
| 4. Ass. | 4. Ass. | 4. Goat. | 4. Goat. |
| 5. Mare. | 5. Mare. | 5. Sheep. | 5. Sheep. |

The ass is subject to few diseases, and its skin is uninfested by parasitic insects.

We have said that in the East the ass in ancient times was generally used for the saddle. There, no degraded ill-treated creature, it was carefully bred and reared, and often clad in gay trappings. Its step was free and vigorous, its form beautiful, its limbs sinewy and strong. Princes and nobles, judges and priests, were among its riders; and a talented writer says in the 'Pictorial Bible,' "we have ourselves seen asses on which princes and great men might not disdain to ride." We might point to numerous passages in the Scriptures illustrative of the ancient domestication, general use, and high value of the ass; but these will suggest themselves to our readers' minds. In Judges v. 10, we read of white asses, which appear to have been used by the nobles, priests, or judges of Israel; these animals being not only thus distinguished by colour, but remarkable also for stature and symmetry, were highly esteemed. There are still white asses to be seen in Syria, and that by no means unfrequently; and as in former days, they are prized before others. In a note upon the passage in question, the learned commentator referred to, speaking of the white asses of western Asia, states that "they are usually in every respect the finest of their species, and their owners certainly take more pride in them than in any other of their asses. They also sell at a much higher price; and those hackney ass-men who make a livelihood by hiring out their asses to persons who want a ride, always expect better pay for the white ass than for any of the others. The superior estimation in which

they are held is indicated by the superior style of their furniture and decorations; and in passing through the streets the traveller will not fail to notice the conspicuous appearance which they make in the line of asses which stand waiting to be hired. The worsted trappings are of gayer colours, the beads and small shells are more abundant and fine, and the ornaments of metal more bright. But above all, their white hides are fantastically streaked and spotted with the red stains of the henna plant, a barbarous kind of ornament which the western Asiatics are fond of applying to their own beards and to the manes and tails of their white horses."

Asses of a pure white colour, and to be regarded as albinos, are occasionally to be seen in our island, but perhaps more commonly in Spain, where piebald asses of large stature (clouded with large grey patches on a white ground) are still more frequent. Of this latter breed we suppose was Sancho Panza's faithful "dapple."

We have notes of a white ass bred by Lord Essex from a fine stock of piebald Spanish asses kept up some few years since by that nobleman at Watford in Essex. This animal came into the possession of Mr. Herring about the year 1828. It was not a true albino, for the irides were chesnut brown. The general coat, however, was purely and beautifully white, without either dorsal line or humeral cross-bar; but a few dusky spots about the muzzle, some dark hairs in the tassel of the tail and on the shoulders, taken in conjunction with the colour of the iris, demonstrated that the *rete mucosum* was not wholly destitute of colour. It was tall, vigorous, and admirably proportioned. We may here observe, *en passant*, that in our boyhood we saw four very tall and purely white Spanish mules in the park of a gentleman near Bewdley in Worcestershire.

While speaking of the white colour of some breeds of the ass, and the dappled markings of others, we may observe, that a variety with zebra-like stripes upon the limbs to the very hoofs is not unfrequently to be met with in our island and elsewhere, and sometimes even a double cross upon the shoulders is to seen. To what

cause the zebra markings on the limbs (and we have seen them strongly painted in mules) are to be attributed, it is not easy to say. Is there, or has there been, a striped wild ass indigenous in Asia? or does this style of marking proclaim a cross at a remote date with some African species of the zebra section? We cannot tell, but we have observed that asses and mules thus marked are larger and more powerful than the ordinary animals. At Mocha (Mecca), as we learn from Lord Valentia, there are two races of ass, of which one has the legs banded transversely with black like the zebra. Most probably in every country where the ass is domiciliated a similar breed is more or less prevalent.

As the ass is an original native of Western Asia, it is there that we naturally expect to find it in its highest degree of perfection, nor are our expectations in the main disappointed. Not that every breed is alike large and powerful, for we learn that in Syria a small but graceful and spirited breed, with an agreeable gait, is common; and that upon animals of this breed the Syrian ladies ride from preference. We know, moreever, that in India, where the ass is neglected, the breeds are of very inferior quality. In Western India these animals are not much larger than good-sized Newfoundland dogs. They are used in droves to carry small loads of salt or grain; they are also used by the potmakers to carry their clay; and are always seen, as in Europe, associated with gipsies. ('Proceedings of Zool. Soc.,' 1837, p. 95.)

This statement agrees with that of Captain Williamson, who describes the ass in British India as an ill-used and miserable creature, degenerated and debased accordingly. He observes that these poor animals are "remarkably small, being generally not more than twenty or thirty inches high, and very much cat-hammed. They are however very strong, and carry a single sack on their loins, containing bricks, &c. to a considerable weight. Their general use is among washermen, for carrying the clothes. This class of people, whose employment is hereditary and immutable, have the sole pri-

vilege of riding asses; any other sect, either riding or employing an ass, would be irreparably degraded." ('Oriental Field Sports,' vol. ii.)

It is in Arabia that the ass, following as it were in the wake of the horse, shows the highest blood, spirit, and symmetry; and where the direct Arab lineage has been carried out, as in some districts of Persia, Syria, Spain, &c., the ass maintains a not undignified standing. Many travellers, and among others Chardin, describe the Arabian ass as a really elegant creature. The coat is smooth and clean; the head is carried high and proudly; the limbs are clean, well-formed, and muscular, and in walking or galloping they are thrown out gracefully. It is only for the saddle that these Arab asses are used, and they are imported in considerable numbers into Persia and Syria. Some of the finest sell for a considerable sum (Chardin says 400 livres; but what is the livre of Western Asia? perhaps a few pence only). They are taught an easy ambling pace, and are made use of by the wealthy, who adorn them with splendid trappings.

In Syria, besides the small breed already noticed, there are, according to Dr. Russell, three well-marked breeds. The first is of Arab lineage, and reserved exclusively for the saddle; animals of this breed are extensively used by the middle classes, the sheikhs, or religious men, and the elderly of the more opulent classes. They are fed and dressed with the same care as horses, the bridle is ornamented with shells, fringe, &c., and the saddle is covered with a fine carpet; they are active, spirited, and of tall stature, and very docile. The stirrups are made in the European fashion, and not in the broad box fashion of those used for horses. Asses of this high lineage are sent to Persia, where they are greatly valued. In Ispahan, according to Morier, "the mollahs, or men of the law, are generally to be seen riding on mules, but they also account it a dignity and suited to their character to ride on white asses, which is a striking illustration of what we read in Judges v."

The second breed in Syria is a stout animal, used for

work of every description to which the ass is applicable. These animals serve in the plough, and large caravans of them are daily employed in taking provisions from the villages to the towns.

The third variety of the ass in Syria is known by the name of the Damascus ass, because it is very common in that city. It is characterized by a peculiarly long body and long ears. It is of large stature, exceeding the ordinary breed, and its skin is smoother, and of a much darker colour. The bakers of Damascus employ it in transporting flour and brushwood. "A rider on this animal sitting almost close to the tail, when viewed from behind has the figure of a centaur."

A writer on Persia, speaking of the asses of that country, states, that with the exception of those of Arabian extraction, they are by no means remarkable for beauty, and though strong, and capable of bearing much fatigue, they are not much superior to the better sort of asses in our country, but are more tractable, in consequence of being more kindly treated and more cared for. Poor travellers have generally an ass to carry a little baggage for them. "It keeps of its own accord in company with the mules, horses, and asses which belong to the party, and does not require much watching. When the master is tired of walking, he relieves himself by a little ride upon his donkey: when that is the case, he generally springs upon the back of the animal all of a sudden, because in general if the ass gets any suspicion of this intention, he runs about, and it sometimes takes much trouble to catch him. The men ride their asses without bridles or halters, merely guiding them by tapping their necks with a stick; so that if the rider wishes his ass to go more to the left on the road, he taps him on the right side of his neck." We learn from the same writer that it is a common practice in Persia to slit the nostrils of the asses, which gives them a curious appearance. It is done with a view of assisting them in their breathing.

In Europe no country is so celebrated for its breed of asses as Spain; these animals are of large stature and

fine symmetry, and many are extremely valuable. A very important reason for the preservation of this beautiful stock in high perfection is the production of mules, which in the mountain districts are of paramount importance, and indeed are highly valued, both for the saddle and as beasts of burden, throughout the whole of the peninsula. By the humbler and even middle classes in Spain, the ass is ordinarily employed for the saddle and in agricultural labour, as well as for general work, and in its stature, gait, and actions presents a marked contrast with the overworked, ill-fed, and ill-used animal, to be seen gleaning a miserable pittance on the commons and in the lanes of our country. Spanish asses have been introduced at various times into England, and that at considerable expense; but as far as we can learn, our native breed has not been benefited by their importation, not because such a result would not take place by judicious inter-breeding, but because the ass, being for the most part the property only of the poor and ignorant, both the wish and the means to improve the race are wanting. With respect to the horse, the case is the reverse.

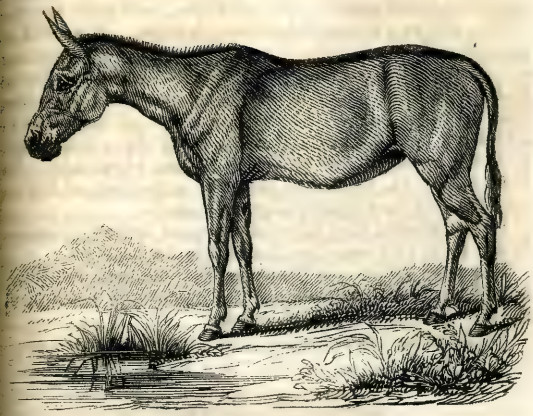
Italy possesses a breed of asses little if at all inferior to those of Spain. It is probable that this stock has descended from a race of remote antiquity in that country, for these animals were highly esteemed by the Romans, and individuals occasionally sold them for large sums. Anciently the asses of Greece were much valued, but in the present day the breed is of inferior quality. In some parts of France (le Poitou et le Mirebalais) there is a fine race of asses. These animals are numerous in Sardinia, but they are not so fine as those in Spain or Italy. In the north of Europe the ass is little known. Linnæus says that it was rare in Sweden in his time, and only kept in the parks of nobles (see 'Fauna Suecica,' 1746). In America the ass, like the horse, is now common, especially in Peru and Paraguay, where great numbers are maintained for the sake of keeping up a stock of mules, animals absolutely necessary in the mining districts, where they have superseded the indigenous llama, the

ancient Peruvian beast of burden, the camel of the crags of the New World.

There is no doubt that the ass was introduced into South America by the Spaniards, and there, like the horse, it has run wild, and in some districts multiplied to so great an extent, as, for example, in the kingdom of Quito, that numbers, it is affirmed, may be had for little more than the trouble of catching. When wanted they are hunted by the natives, and ensnared by means of the lazo. They are active and fleet, and exhibit evident proofs of their Spanish origin; and were it not for the excessive numbers in which they exist, or did formerly, thence becoming destructive to the cultivated lands, they would prove a valuable acquisition.

Baron Humboldt ('Personal Narrative') informs us that in the sixteenth century these animals were so abundant in the Isle of Fortaventura, that they were hunted and killed by thousands in order to save the harvest. The same author mentions the extraordinary fact of their being able to obtain liquid, when herding in the arid plains, where no water exists. Their fine sense of smelling informs them that a considerable quantity of moisture is contained in the melon thistle (*cactus melocactus*), and their instinct suggests to them the readiest method of procuring it from that singular vegetable cistern. Before they attempt to make an opening into it, they carefully push aside, or break off with their hoofs, the sharp thorns by which it is protected, and in this they generally succeed perfectly, though some few become wounded or even lamed by the operation. In this procedure, there is no particle of the innate stupidity which it is customary to attribute to the ass, as one of its essential characteristics.

The produce of the male ass and mare is termed a *mule*—of the male horse and female ass, a *hinney*—le bardeau of the French. The hinney is rare, and of little value, being of small stature, and destitute of symmetry and strength. On the contrary, the mule is an animal of great value and utility, and in the mountain countries of southern Europe is the most efficient beast of burden.



Mule.

The first notice of the mule on record is to be found in Genesis xxvi. 24:—"This was that Anah that found the mules in the wilderness, as he fed the asses of Zibeon his father." On this passage, however, there is much contrariety of opinion. According to the Jewish Rabbins, and some learned commentators, Anah was the first who coupled the ass and mare, while others regard the word *yemim*, translated mules, to mean a gigantic race of warriors, and this is the opinion of Bochart. The Syriac version and St. Jerome render the word "aquas calidas" warm springs; and that this is the true meaning is the opinion, we believe, of most of the learned men of the present day. Speaking as a zoologist, we should say, that whatever the Hebrew word may mean, mules are not intended, for the horse was not known, as far as we can discover, at so early a period (B.C. 1600 or 1500) in Palestine. But rejecting this passage as of little weight, still we find the mule expressly noticed long

before the Christian era. In the time of David, and probably much earlier, the mule was used both for the saddle and as a beast of ordinary burden. We read of provisions being brought "on asses, and on camels, and on mules, and on oxen" (1 Chron. xii. 40). David had saddle-mules, and it was on a mule that Absalom rode when he retreated from the battle, at the close of which he lost his life (2 Sam. xviii. 9). Togarmah traded in mules as well as horses (Ezek. xxvii. 14). In Esther, viii. 14, we read of the posts or couriers of Persia and Media riding upon mules and camels.

In the present day there are various breeds of mules in the East, and some are remarkable for beauty.

The most valuable in Syria are bred between the Arab mare and a male ass, selected for figure and spirit, and some of these sell at a high price.

"The better sort of mules which are capable of carry-

Laden Spanish Mule.

ing heavy loads are employed in the caravans, and the common sort are of great service for the mill and water-wheels. Both are maintained at less expense than horses, and, being surer-footed, are better suited for traversing the rugged roads in mountainous countries. The domestic trade with the maritime towns and the mountains is not only carried on chiefly by mule caravans, but they are sent even to Erzeroum, Constantinople, and other remote towns. In these caravans the male travellers are mounted on mules lightly laden (usually with the mere personal baggage of the rider), and the women either ride in the same manner (sitting astride as they always do like men), or in a kind of wooden cradle, called muhaffy, hung on one side of the mule, with another to balance it, occupied or not, but made equi-ponderant to the other. But persons of a certain rank travel in a kind of litter carried by two mules. Within the towns, and in short excursions to the circumjacent gardens, asses generally have the preference, and the mules are charged with the baggage. Burckhardt states that the breed of Baalbec mules is much esteemed, and that he had seen some which were worth on the spot 30*l.* or 35*l.*, a large sum in that quarter."—' Phys. Hist. Palestine.'

Mr. Lane, in a note to chap. viii. of the ' Arabian Nights,' states that the litter borne by mules is generally one resembling a palanquin; it is usually carried by four of these animals, two before and two behind, or by two only; or more commonly by camels, and sometimes by two horses. This litter is called " takht-rawán," and also " mihaffeh."

We are informed by an entertaining writer on Persia, that the mules of that country are not very large, but have amazing strength and power of endurance. They will travel the stony and steep roads over rocky mountains day after day at the rate of from twenty-five to fifty miles per diem, loaded with a weight of three hundred pounds. They require more food than the horse—the muleteers never remove the pack-saddles from their backs, except when cleaning and currying them. If the

men find that the back has been galled, they take away some of the stuffing from the pack-saddle, where it presses on the sore part, and then put the saddle on again, experience having taught them that such sores, unless healed under the saddle, are apt to break out again.

From an early period the mule has been valued in southern Europe. The Roman ladies had equipages drawn by mules, as appears from medals of Julia and Agrippina; and in Spain the carriages of persons of high rank are drawn even in the present day by mules splendidly caparisoned, and formerly the highest hidalgos rode, except when in battle, on these animals. In the poem of the 'Cid' we read that Diego Lainez, when he rode forth to meet the good King Ferdinand, had three hundred hidalgos in his train all on mules—

> "All these knights on mules are mounted,
> Ruy a war-horse doth bestride;
> All wear gold and silken raiment,
> Ruy in mailed steel doth ride."

Mules are now of general use in Spain and Portugal, and some are of great stature and beauty, being fifteen or even sixteen hands in height, and often worth more than 50*l*. Not only is the mule employed for the saddle and for draught, but it is by caravans of laden mules that the internal traffic of the country is carried on, and, indeed, in the mountain-ranges these animals, from their sure-footedness and sagacity, are indispensable. With wary caution and cool resolution they traverse the difficult pass along the edge of the tremendous precipice, where a false step would be destruction; they plod their way up the toilsome winding ascent, or follow the steep downward path, rugged as it may be, with untiring perseverance. It sometimes happens that an abrupt declivity of more than usual steepness has to be passed, and it is then that the mule has to exert all its sagacity and resolution; it proceeds cautiously, with the fore-legs stretched forwards, and the hind limbs bent under the body, and takes step by step, with the utmost circum-

spection, till at length, retaining its attitude and keeping its balance, it slides down the rocky surface of the declivity, and gains the place of security. The traveller who ventures the mountain-passes on a well-tried mule must keep his nerves firm and his head steady, and trust to the animal entirely; he must neither check nor urge it; though the narrow-winding shelf along which he passes presents a towering wall on one side, and a profound abyss on the other, still he may rely on his mule if he can on his own firmness.

Mule of the East.

That mules should be employed in carrying on the inland commerce of Spain is not surprising. The great cities and towns are few and far asunder; the communications between them are slow and insecure; the face of the land is rugged and intersected by high ridges of mountains; there are few carriage-roads; no canals; no internal navigation. Hence are these patient sure-footed animals of more solid and general importance even than the horse. In consequence of this system of land-carriage, a great amount of property is constantly in the hands of a class of persons, to whose care it is intrusted.

These men are called arrieros, or muleteers, and are noted for their hardihood and fidelity.

An original writer on 'The Labourers of Europe,' in the 'Penny Magazine,' gives us the following account. "The arrieros, or muleteers, of Spain form a numerous and rather conspicuous part of the Spanish population. Mules are preferred in Spain for driving, as being more sure-footed and hardier than horses. Besides which there are caravans of mules, with loads on their backs, constantly crossing Spain on the various roads, carrying corn, rice, flour, pulse, wine, and oil, in skins, as well as goods from the sea-ports to the interior. The muleteer is a primitive being; he wanders all over the vast Peninsula; his home is everywhere; light-hearted and jovial, he is also honest, and his punctuality in general may be depended upon. He is very kind to his mules, calls them by their names, talks to them, scolds them, and his first care on arriving at the inn is to see them comfortably provided for; and then, and not till then, he thinks of himself. He is sutler, or travelling merchant, carries parcels, and executes commissions for people on the road. The master muleteer, or owner of a number of mules, sends his servants on various journeys, and pays their expenses on the road, besides their wages. On more important and profitable expeditions he sets forth himself. During the war in the Peninsula the muleteers were much employed by the English commissariat to carry provisions for the army, and they were paid handsomely. Accordingly, some of them were known to have come with their mules from the heart of Castile, then in possession of the French, to the frontiers of Portugal, where were the English cantonments, evading the French posts and scouring parties. Often in the dead of the night has the English bivouac been cheered by the distant chaunt of the Spanish muleteer, singing national ballads of the 'good land of Valencia, the Eden of Spain,' or boasting of the 'impregnable city of Zaragoza, which the French shall never conquer,' and of its patroness our 'Lady del Pilar,' the jingling of the mule's bells echoing to each cadence."

" How carols now the lusty muleteer!
Of love, romance, devotion is his lay,
As whilome he was wont the leagues to cheer,
His quick bells wildly jingling by the way?—
No! as he speeds, he chaunts—Viva el Rey!"—
*Childe Harold.*

A similar account of the Spanish muleteer is given by Washington Irving. "The muleteer is the general medium of traffic, and the legitimate traverser of the land crossing the Peninsula from the Pyrenees and the Asturias to the Alpuxarras, the Serrania de Ronda, and even the gates of Gibraltar. He lives frugally and hardily; his alforjas of coarse cloth holds his scanty stock of provisions; a leather bottle hanging at his saddle-bow contains wine or water, for a supply across barren mountains and thirsty plains. A mule-cloth spread upon the ground is his bed at night, and his pack-saddle is his pillow. His low, but clean-limbed and sinewy form betokens strength; his complexion is dark and sun-burnt; his eye resolute but quiet in its expression, except when kindled by sudden emotion; his demeanour is frank, manly, and courteous, and he never passes you without a grave salutation,—'Dios guarde à usted, Va usted con Dios, caballero!' 'God guard you, God be with you, cavalier!'" Such then are the men who, from the established custom of employing mules time immemorial in Spain as the transporters of merchandise, have sprung up, and established themselves as an important class of the population. The muleteer and his caravan of mules, their "quick bells wildly jingling," constitute essential features in a Spanish landscape. At a former period in our island, before roads were fitted for wheel-carriages, the carrier and his string of pack-horses in like manner gave animation to the wilder districts.

Mules are extensively employed in the mining districts of South America, and vast members are bred accordingly. When the Spaniards first invaded Peru and Chili, they found the llama domesticated, and used as a beast of burden, its flesh and wool being also in great

request. It was their only substitute for the horse, ass, mule, and camel of the old world. Its flesh was eaten, its skin converted into leather, and its wool spun and manufactured into cloth. One of the labours to which the llama was subjected was that of bringing down ore from the mines in the mountains. Its ordinary load was eighty or one hundred pounds, and its average rate of travelling with this burden over rugged mountain passes from twelve to fifteen miles per day. Like the camel, if too heavily laden, it would lie down, and obstinately refuse to proceed, nor would it bear to be urged beyond its accustomed pace. Gregory de Bolivar estimated that in his day three hundred thousand were employed in the transport of the mines of Potosi alone, and four millions annually killed for food. To the llama the mule has succeeded; and, as in Spain, its value is well appreciated. Baron Humboldt in his personal narrative depicts in a very forcible manner the sagacity and sure-footedness of the mule under circumstances of no trifling emergency, nor will a short extract from his narrative be here out of place. "The valleys," he says, "of Guanaguana and Caripe are separated by a kind of dyke or calcareous ridge, well known by the name of the Cuchilla de Guanaguana. The path is indeed in several places only fourteen or fifteen inches broad, and the ridge of the mountain along which the road runs is covered with a short turf, extremely slippery. The slopes on each side are steep, and the traveller, if he should stumble, might slide down seven or eight hundred feet. The mules of this country are so sure-footed that they inspire the greatest confidence. Their habits are the same as those of Switzerland and the Pyrenees. In proportion as a country is more savage, the instinct of domestic animals improves in address and sagacity. When the mules feel themselves in danger, they stop, turning their heads to the right and to the left: the motion of their ears seems to indicate that they reflect on the decision they ought to take. Their resolution is slow but always just, if it be free, that is to say, if it be not crossed or hastened by the imprudence of the tra-

veller. It is on the frightful roads of the Andes that the intelligence of horses and beasts of burden displays itself in an astonishing manner. Thus the mountaineers are heard to say, 'I will not give you the mule whose step is easiest, but him who reasons best.' This popular expression, dictated by long experience, combats the system of animated machines better perhaps than all the arguments of speculative philosophy."

In another part of his interesting narrative the same philosophic writer describes, with still greater minuteness, the dangers of a far more difficult pass which occurs in the provinces of Venezuela and Cumana, and which, from its terrific character, the missionaries have noted by giving it the title of the Purgatory. In descending this pass all must be trusted to the mules—"in going down they draw their hind legs near their fore legs, and, lowering their crupper, let themselves slide down at a venture, but the rider runs no risk provided he loosens the bridle and leaves the animal at perfect liberty in its movements." He then proceeds to say that, after passing through a thick forest, "we descended without intermission for seven hours, and it is difficult to form an idea of a more tremendous descent—it is a real *chemin des échelles* (road of steps), a kind of ravine in which during the rainy seasons impetuous torrents tumble from rock to rock. The steps are from two to three feet high, and the unfortunate beasts of burden, after having measured with their eye the space necessary to let their load pass between the trunks of the trees, leap from one rock to another. Afraid of missing their leap, we saw them stop for a few minutes to examine the ground and bring together their four feet like wild goats. If the animal do not reach the nearest block of stone he sinks half his depth into the soft ochrey clay that fills up the interstices of the rock. When the blocks are wanting, enormous roots serve as supports to the feet of men and beasts; these are some of them twenty inches thick, and often issue from the trunks of the trees much above the level of the soil. The Creoles have sufficient confidence in the address and happy instinct

of the mules to remain on their saddles during this long and dangerous descent."

Whilst in Spain, Portugal, Italy, the south of France, and South America, mules are reared in vast numbers, few, comparatively speaking, are bred in our island; and in northern Europe this hybrid is almost or quite unknown. With respect to the British islands, the characters of the country, the state of the roads, and the unbounded facilities of communication between the most distant places by means of wheel-carriages, canals, and navigable rivers, render the employment of mules entirely out of the question. Nevertheless, they might, under certain circumstances, be brought to serve with advantage in various operations of agriculture, especially in the hilly districts; and a breed of great strength and stature might easily be procured between the Spanish male ass and the half-bred mare. Fine and very powerful mules bred in this country have occasionally passed under our notice, and, indeed, we lately saw a team of such animals equalling the ordinary cart-horse in stature, if not standing taller, in proportion to their bulk. A beautiful and spirited mule of a brown colour, with zebra markings on the legs, was, and perhaps is now, in the possession of one of the principal butchers of Hammersmith; we have often admired its action and docility. We have already alluded to four white Spanish mules, which we chanced to see at a time when we little dreamed that this animal would ever be the subject of our pen; though noticed in boyhood, the impression they made upon our mind is indelible; it was at the same time, and in the same grounds, that we first saw a pure white peacock.

Naturalists have assumed as a rule that hybrids, the produce of two parents of different species, are incapable of continuing the race; and this perhaps is true to a certain extent: nevertheless, it would appear to be equally true that hybrids not unfrequently interbreed with one of the pure stock from which they have sprung. The ancients, indeed, mention a sort of mules in Phrygia, Syria, Cappadocia, and Africa, which are stated to have

been prolific. (See Aristotle, 'Hist. Anim.' lib. vi.; Varro, 'De Re Rusticâ,' lib. ii.; Columella, lib. vii.; Pliny, lib. viii. But on such authorities it is unsafe to trust implicitly.) Bewick says—"Mules have not unfrequently been known to bring forth young, especially in hot countries; and instances have not been wanting both in England and Scotland, though they are rare. But it would require a succession of experiments to prove that mules will breed with each other, and produce an offspring equally capable of continuing the race."

For ourselves we believe the mule or hybrid between the ass and mare to be utterly incapable of continuing the intermediate race, though we are ready to admit that the female mule may produce young, the male parent being a horse; and that the male mule and mare will occasionally breed together, and perhaps in more genial climates than our own instances of this intermixture may be more abundant. Mr. Bell says—"The mule has occasionally been known to produce young with the horse or the ass; these cases are, however, extremely rare, and serve as illustrations of the statement I have already made; as there is no instance on record of two mules having bred together." To this he adds, in a note, "The following fact must doubtless be placed to the account of reproducing in the mule: a small mare was placed in a paddock in the Zoological Society's gardens, in company with a male *white* ass, and a male hybrid between the zebra and the ass (animals nearer allied than the horse and ass, be it remembered). She had a foal which was distinctly marked with black stripes across the legs," and therefore was regarded as the produce on the male side of the hybrid, as was probably the fact. Some years since, in Cheshire, we saw a slender-limbed beautiful animal, intermediate in appearance between the mule and horse, and we were assured that it was the offspring of a mare and mule, and that from the circumstances in which the mare was placed the male parentage of the animal in question could not be otherwise.

With regard to its physical characteristics, the mule seems to partake rather of the properties of the ass than

of the horse. In stature it vies with the latter; its neck is long, but not arched, and its limbs are long, but slender; its colour is usually of a dark tint, more or less inclining to brown; but it has a large head, long ears, an upright hogged mane, a tasselled tail, thin hinder quarters, dorsal and humeral stripes, sometimes stripes on the limbs, and the warty excrescences confined to the anterior limbs; in these points agreeing with the ass. Its hoofs, like those of the ass rather than the horse, indicate its fitness for a craggy mountain home; it is more patient, more persevering, more calculating, more cunning than the horse, but less impetuous, less fiery, less animated. Under certain conditions it exceeds the horse in utility; under others it is decidedly inferior to that noble animal. To the Spaniard, amidst the mountain ranges, to Peruvian or Chilian of the Andes, it is all-important, and from its hardiness might be most advantageously reared in Australia, Van Diemen's Land, and New Zealand.

The following hybrids, or mules, between different species of the solidungulous or equine family have been produced and reared at the gardens of the Zoological Society of London, and by the keepers of various menageries:—

1. Mule between Burchell's Zebra (male) and Ass (female).
2. „ „ Common Zebra (male) and Ass (female).
3. „ „ Dziggetai (male) and Ass (female): fleet and beautiful.
4. „ „ Zebra and Exmoor Pony—the mule was very little striped about the legs.
5. „ „ Zebra and Dziggetai.

In several instances these hybrids or mules were rendered obedient, and became very serviceable animals, exhibiting surprising muscular powers.

Some years since, a hybrid between Burchell's zebra and a female ass, bred at Windsor, on one of the farms of His Majesty George IV., and presented to the Zoological Society, was broke in at the age of two years old, in company with a mule between a male zebra and female

ass (also bred at Windsor), to work in a light spring-cart belonging to the Society. It was not without some trouble that their subjugation was effected; their temper, that of the latter in particular, being wild and even vicious, and strangers who approached too familiarly were in danger of a bite or kick, which were the instantaneous answers to any annoying liberties. In stature both these mules were nearly equal, and intermediate between the ass and zebra; but the markings on the true zebra-mule were more numerous and distinct than on its companion. The ground colour was deep dun, and the stripes on the neck and body were dark and thickly set, although not well defined. The chaffron, muzzle, and fore-part of the neck were dull bay; the ears were barred with white, and tipped with dark brown, and the mane was partly white and partly brown, but the colours did not regularly alternate. In the Burchell's or plain zebra-mule, the general ground-tint was clear drab or dun, with a slight reddish tinge; bay prevailed on the face; the chaffron was not striped, but the ears were barred and tipped with white, the mane being also of that tone; on the neck and body the stripes were faint and confused, but they were continued more distinctly down the outside of all the limbs to the fetlocks; but the darkest and best defined lines were the dorsal and those across the shoulders; inside of the limbs white.

In the years 1832-1833, and subsequently, these animals were driven tandem-fashion through the crowded streets of London; they were very powerful, correct, and quick in their paces, and sufficiently obedient to the reins. Of late years, we believe that they have been restricted to labour within the Society's gardens; and, indeed, it is only a short time since that we saw a hybrid, apparently between Burchell's zebra and the ass, employed in drawing a heavy iron garden-roller over the grass. It appeared to be extremely docile, and was conducted so as to bring the roller with great nicety round the margins of the flower-beds.

There can be no doubt that mules between animals of the zebra group and the ass or mare might be very easily

reared and broken in; those between the quagga and the mare in particular (as the hybrid bred by the Earl of Morton, and already alluded to, sufficiently proved) would be large and powerful.

With respect to the species of the zebra, or hippotigrine group, though they display great obstinacy, their subjugation is far from impossible. If we mistake not, a pair of pure zebras were reclaimed and driven by a celebrated equestrian some years since; and Lord Morton was in the habit of driving a pair of quaggas in a curricle about the parks and streets of London. It is not however very likely, while the generous horse is at our service, that any of the striped African equidæ will be brought into general use, or that any attention, at least in Europe and Asia, will be devoted to the production of zebraïne hybrids. Nevertheless a cross between the Asiatic dziggetai and ass might be of value, but how far this cross-breed would prove fertile *inter se*, remains to be proved. A series of experiments, even zoologically considered, are well worth making; nor are the means wanting either in this country or France.

Zebra and Horse.

# APPENDIX.

## ON THE DISEASES OF THE HORSE.

FROM A TREATISE IN THE 'STORE OF KNOWLEDGE.'

BY WILLIAM YOUATT.

THE principal diseases of the horse are connected with the circulatory system. From the state of habitual excitement in which the animal is kept, in order to enable him to execute his task, the heart and the blood-vessels will often act too impetuously: the vital fluid will be hurried along too rapidly, either through the frame generally, or some particular part of it, and there will be *congestion*, accumulation of blood in that part, or *inflammation*, either local or general, disturbing the functions of some organ, or of the whole frame.

*Congestion.*—Take a young horse on his first entrance into the stables; feed him somewhat highly, and what is the consequence? He has swellings of the legs, or inflammation of the joints, or perhaps of the lungs. Take a horse that has lived somewhat above his work, and gallop him to the top of his speed: his nervous system becomes highly excited—the heart beats with fearful rapidity—the blood is pumped into the lungs faster than they can discharge it—the pulmonary vessels become gorged, fatigued, and utterly powerless—the blood, arrested in its course, becomes viscid, and death speedily ensues. We have but one chance of saving our patient—the instantaneous and copious abstraction of blood; and only one means of preventing the recurrence of this dangerous state, namely, not suffering too great an accumulation of the sanguineous fluid by over-feeding, and by regular and systematic exercise, which will inure the circulatory vessels to prompt and efficient action when they are suddenly called upon to exert themselves. The cause and the remedy are sufficiently plain.

Again, the brain has functions of the most important nature to discharge, and more blood flows through it than through any other portion of the frame of equal bulk. In order to prevent this organ from being oppressed by a too great determination of blood to it, the vessels, although numerous, are small, and pursue a very circuitous and winding course. If a horse highly fed, and full of blood, is suddenly and sharply exercised, the course of the blood is accelerated in every direction, and to the brain among other

parts. The vessels that ramify on its surface or penetrate its substance are completely distended and gorged with it. Perhaps they are ruptured, and the effused blood presses upon the brain; it presses upon the origins of the nerves on which sensation and motion depend, and the animal suddenly drops powerless. A prompt and copious abstraction of blood, or, in other words, a diminution of this pressure, can alone save the patient. Here is the nature, the cause, and the treatment of *apoplexy*.

Sometimes this disease assumes a different form. The horse has not been performing more than his ordinary work, or perhaps he may not have been out of the stable. He is found with his head drooping and his vision impaired. He is staggering about. He falls, and lies half unconscious, or he struggles violently and dangerously. There is the same congestion of blood in the head, the same pressure on the nervous origins, but produced by a different cause. He has been accustomed habitually to overload his stomach, or he was, on the previous day, kept too long from his food, and then he fell ravenously upon it, and ate until his stomach was completely distended and unable to propel forward its accumulated contents. Thus distended, its blood-vessels are compressed, and the circulation through them is impeded or altogether suspended. The blood is still forced on by the heart, and driven in accumulated quantity to other organs, and to the brain among the rest; and there congestion takes place, as just described, and the animal becomes sleepy, unconscious, and, if he is not speedily relieved, he dies. This too is apoplexy; the horseman calls it *stomach staggers*. Its cause is improper feeding. The division of the hours of labour, and the introduction of the *nose-bag*, have much diminished the frequency of its occurrence. The remedies are plain,—bleeding, physicking, and the removal of the contents of the stomach by means of a pump contrived for that purpose.

Congestions of other kinds occasionally present themselves. It is no uncommon thing for the blood to loiter in the complicated vessels of the *liver*, until the covering of that viscus has burst, and an accumulation of coagulated black blood has presented itself. This congestion constitutes the *swelled legs* to which so many horses are subject when they stand too long idle in the stable, and it is the source of many of the accumulations of serous fluid in various parts of the body, and particularly in the chest, the abdomen, and the brain.

*Inflammation* is opposed to *congestion*, as consisting in an active state of the capillary arterial vessels; the blood rushes

through them with far greater rapidity than in health, from the excited state of the nervous system by which they are supplied.

Inflammation is either *local* or *diffused*. It is confined to one organ, or to a particular portion of that organ; or it involves many neighbouring ones, or it is spread over the whole frame. In the latter case it assumes the name of *fever*. Fever is general or constitutional inflammation, and is said to be *sympathetic* or *symptomatic* when it can be traced to some local affection or cause, and *idiopathic* when we cannot so trace it. The truth probably is, that every fever has its local cause, but we have not a sufficient knowledge of the animal economy to discover that cause.

Inflammation may be considered with reference to the membranes which it attacks.

The *mucous membranes* line all the cavities that communicate with the external surface of the body. There is frequent inflammation of the membrane of the mouth. *Blain*, or *Glossanthrax*, is a vesicular enlargement which runs along the side of the tongue. Its cause is unknown. It should be lanced freely and deeply, and some aperient medicine administered. *Barbs*, or *paps*, are smaller enlargements, found more in the neighbourhood of the bridle of the tongue. They should never be touched with any instrument: a little cooling medicine will generally remove them. *Lampas* is inflammation of the palate, or enlargement of the bars of the palate. The roof of the mouth may be slightly lanced, or a little aperient medicine administered: but the sensibility of the mouth should never be destroyed by the application of the heated iron. *Canker* and *wounds in the mouth* from various causes, will be best remedied by diluted tincture of myrrh, or a weak solution of alum.

*Foreign bodies in the gullet* may generally be removed by means of the probang used in the hoove of cattle; or the œsophagus may be opened, and the obstructing body taken out.

It is on the mucous membranes that *poisons* principally exert their influence. The *yew* is the most frequent vegetable poison. The horse may be saved by timely recourse to equal parts of vinegar and water injected into the stomach, after the poison has been as much as possible removed by means of the stomach-pump. For arsenic or corrosive sublimate there is rarely any antidote.

*Spasmodic colic* is too frequently produced by exposure to cold, or the drinking of cold water, or the use of too much green meat. The horse should be walked about, strong friction used over the belly, and spirit of turpentine given in

doses of two ounces, with an ounce each of laudanum and spirit of nitrous æther, in warm water or ale. If the spasm is not soon relieved the animal should be bled, an aloetic ball administered, and injections of warm water with a solution of aloes thrown up. This spasmodic action of the bowels, when long continued, is liable to produce *introsusception*, or *entanglement*, of them, and the case is then hopeless.

*Superpurgation* often follows the administration of a too strong or improper dose of physic. The torture which it produces will be evident by the agonised expression of the countenance, and the frequent looking at the flanks. Plenty of thin starch or arrowroot should be given both by the mouth and by injection; and, twelve hours having passed without relief being experienced, chalk, catechu, and opium should be added to the gruel.

*Worms* in the intestines are not often productive of much mischief, except they exist in very great quantities. Small doses of emetic tartar with a little ginger may be given to the horse half an hour before his first meal, in order to expel the round white worm; and injections of linseed-oil or aloes will usually remove the ascarides, or needle-worms.

The *respiratory passages* are all lined by the mucous membrane. *Catarrh*, or *cold*, inflammation of the upper air passages, should never be long neglected. A few mashes or a little medicine will usually remove it. If it is neglected, and occasionally in defiance of all treatment, it will degenerate into other diseases. The larynx may become the principal seat of inflammation. *Laryngitis* will be shown by extreme difficulty of breathing, accompanied by a strange roaring noise, and an evident enlargement and great tenderness of the larynx when felt externally. The windpipe must be opened in such case, and the best advice will be necessary. Sometimes the subdivisions of the trachea, before or when it first enters the lungs, will be the part affected, and we have *bronchitis*. This is characterized by a quick and hard breathing, and a peculiar wheezing sound, with the coughing up of mucus. Here too decisive measures must be adopted, and a skilful practitioner employed. His assistance is equally necessary in *distemper*, *influenza*, and *epidemic catarrh*, names indicating varieties of the same disease, and the product of atmospheric influence; differing to a certain degree in every season, but in all characterized by intense inflammation of the mucous surfaces, and rapid and utter prostration of strength, and in all demanding the abatement of that inflammation, and yet little expenditure of vital power.

Cough may degenerate into *inflammation of the lungs;* or this fearful malady may be developed without a single premonitory symptom, and prove fatal in twenty-four or even in twelve hours. It is mostly characterized by deathly coldness of the extremities, expansion of the nostril, redness of its lining membrane, singularly anxious countenance, constant gazing at the flank, and an unwillingness to move. A successful treatment of such a case can be founded only on the most prompt and fearless and decisive measures. The lancet should be freely used. Counter-irritants should follow as soon as the violence of the disease is in the slightest degree abated; sedatives must succeed to them, and fortunate will he be who often saves his patient after all the decisive symptoms of pneumonia are once developed.

Among the consequences of these severe affections of the lungs are *chronic cough*, not always much diminishing the usefulness of the horse, but strangely aggravated at times by any fresh accession of catarrh, and too often degenerating into *thick wind*, which always materially interferes with the speed of the horse, and in a great proportion of cases terminates in broken wind. It is rare indeed that either of these diseases admits of cure. That obstruction in some part of the respiratory canal, which varies in almost every horse, and produces the peculiar sound termed *roaring*, is also rarely removed.

*Glanders*, the most destructive of all the diseases to which the horse is exposed, is the consequence of breathing the atmosphere of foul and vitiated stables. It is the winding up of almost every other disease, and in every stage it is most contagious. Its most prominent symptoms are a small, but constant discharge of sticky matter from the nose; an enlargement and induration of the glands beneath and within the lower jaw, on one or both sides, and, before the termination of the disease, chancrous inflammation of the nostril on the same side with the enlarged gland. Its contagiousness should never be forgotten, for if a glandered horse is once introduced into a stable, almost every inhabitant of that stable will, sooner or later, become infected and die.

The urinary and genital organs are also lined by mucous membranes. The horse is subject to *inflammation of the kidneys* from eating musty oats or mowburnt hay, or from exposure to cold and injuries of the loins. Bleeding, physic, and counter-irritants over the region of the loins should be had recourse to. *Diabetes*, or *profuse staling*, is difficult to treat. The inflammation that may exist should first be subdued; and then opium, catechu, and the uva ursi adminis-

tered. *Inflammation of the bladder* will be best alleviated by mucilaginous drinks of almost any kind. *Inflammation of the neck of the bladder*, evinced by the frequent and painful discharge of small quantities of urine, will yield only to the abstraction of blood and the exhibition of opium. A catheter may be easily passed into the bladder of the mare, and the urine evacuated, but it will require a skilful veterinary surgeon to effect this in the horse. A *stone in the bladder* is readily detected by the practitioner, and may be extracted with comparative ease. The sheath of the penis is often diseased from the presence of corrosive mucous matter. This may easily be removed with warm soap and water.

To the mucous membranes belong the conjunctival tunic of the eye, and the diseases of the eye generally may be here considered. A *scabby itchiness* on the edge of the eye-lid may be cured by a diluted nitrated ointment of mercury. *Warts* should be cut off with the scissors, and the roots touched with lunar caustic. *Inflammation of the haw* should be abated by the employment of cooling lotions, but that useful defence of the eye should never, if possible, be removed. Common *ophthalmia* will yield as readily to cooling applications as inflammation of the same organ in any other animal; but there is another species of inflammation, commencing in the same way as the first, and for a while apparently yielding to treatment, but which changes from eye to eye, and returns again and again, until blindness is produced in one or both organs of vision. The most frequent cause is hereditary predisposition. The reader cannot be too often reminded that the qualities of the sire, good or bad, descend, and scarcely changed, to his offspring. How *moon-blindness* was first produced no one knows; but its continuance in our stables is to be traced to this cause principally, or almost alone, and it pursues its course until cataract is produced, for which there is no remedy. *Gutta serena* (palsy of the optic nerve) is sometimes observed, and many have been deceived, for the eye retains its perfect transparency. Here also medical treatment is of no avail.

The serous membranes are of great importance. The brain and spinal marrow, with the origins of the nerves, are surrounded by them; so are the heart, the lungs, the intestinal canal, and the organs whose office it is to prepare the generative fluid.

*Inflammation of the brain.*—Mad staggers fall under this division. It is inflammation of the meninges, or envelopes of the brain, produced by over-exertion, or by any of the causes of general fever, and it is characterised by the wildest deli-

rium. Nothing but the most profuse blood-letting, active purgation, and blistering the head, will afford the slightest hope of success. *Tetanus*, or *Locked Jaw*, is a constant spasm of all the voluntary muscles, and particularly those of the neck, the spine, and the head, arising from the injury of some nervous fibril—that injury spreading to the origin of the nerve—the brain becoming affected, and universal and unbroken spasmodic action being the result. Bleeding, physicking, blistering the course of the spine, and the administration of opium in enormous doses, will alone give any chance of cure. *Epilepsy* is not a frequent disease in the horse, but it seldom admits of cure. It is also very apt to return at the most distant and uncertain intervals. *Palsy* is the suspension of nervous power. It is usually confined to the hinder limbs, and sometimes to one limb only. Bleeding, physicking, antimonial medicines, and blistering of the spine, are most likely to produce a cure, but they too often utterly fail of success. *Rabies*, or madness, is evidently a disease of the nervous system, and, once being developed, is altogether without remedy. The utter destruction of the bitten part with the lunar caustic, soon after the infliction of the wound, will however, in a great majority of cases, prevent that development.

*Pleurisy*, or inflammation of the serous covering of the lungs and the lining of the cavity of the chest, is generally connected with inflammation of the substance of the lungs; but it occasionally exists independent of any state of those organs. The pulse is in this case hard and full, instead of being oppressed; the extremities are not so intensely cold as in pneumonia; the membrane of the nose is little reddened, and the sides are tender. It is of importance to distinguish accurately between the two, because in pleurisy more active purgation may be pursued, and the effect of counter-irritants will be greater from their proximity to the seat of disease. Copious bleedings and sedatives here also should be had recourse to. It is in connexion with pleurisy that a serous fluid is effused in the chest, the existence and the extent of which may be ascertained by the practised ear, and which in many cases may be safely evacuated.

The heart is surrounded by a serous membrane, the pericardium, that secretes a fluid, the interposition of which prevents any injurious friction or concussion in the constant action of this organ. If this fluid increases to a great degree, it constitutes *dropsy of the heart*, and the action of the heart may be impeded or destroyed. In an early stage it is difficult to detect, and in every stage difficult to cure.

The heart itself is often diseased; it sympathises with the

inflammatory affection of every organ, and therefore is itself occasionally inflamed. *Carditis*, or *inflammation of the heart*, is characterised by the strength of its pulsations, the tremor of which can be seen, and the sound can be heard at a distance of several yards. Speedy and copious blood-letting will afford the only hope of cure in such a case.

The outer coat of the stomach and intestines is composed of a serous membrane, the peritoneum, which adds strength and firmness to their textures, attaches and supports and confines them in their respective places, and secretes a fluid that prevents all injurious friction between them. This coat is exceedingly subject to inflammation, which is somewhat gradual in its approach. The pulse is quickened, but small; the legs cold; the belly tender; there is constant pain, and every motion increases it: there is also rapid and great prostration of strength. These symptoms will sufficiently characterise *peritoneal inflammation*. Bleeding, aperient injections, and extensive counter-irritation will afford the only hope of cure.

The time for *castration* varies according to the breed and destiny of the horse. On the farmer's colt it may be effected when the animal is not more than four or five months old, and it is comparatively seldom that a fatal case then occurs. For other horses, much depends on their growth, and particularly on the development of their fore quarters. Little improvement has been effected in the old mode of castrating, except the opening of the scrotum and the division of the cord by the knife, instead of the heated iron.

*Synovial* or *joint membranes* are interposed between the divisions of the bones, and frequently between the tendons, in order to secrete a certain fluid that shall facilitate motion and obviate friction. Occasionally the membrane is lacerated, and the synovia escapes. This is termed *opened joint*, and violent inflammation rapidly ensues. The duty of the practitioner is to close this opening as quickly as possible. Nothing is so effectual here as the application of the cautery. A great deal of inflammation and engorgement are produced around the opening, partially, if not altogether, closing it; or at least enabling the coagulated synovia to occupy and obliterate it. Perhaps, in order to secure the desired result, the whole of the joint should be blistered. After this a bandage should be firmly applied, and kept on as long as it is wanted. If there is any secondary eruption of the synovia, the cautery must again be had recourse to.

*The Navicular Disease* is a bruise, or inflammation, or perhaps destruction, of the cartilage of the navicular bone,

where the flexor tendon of the foot passes over it in order to reach the coffin-bone. The veterinary surgeon can alone ascertain the existence and proper treatment of this disease. *Spavin* is an enlargement of the inner side of the hock. The splint-bones support the inferior layer of those of the hock, and as they sustain a very unequal degree of concussion and weight, the cartilaginous substance which unites them to the shank-bone takes on inflammation. It becomes bony instead of cartilaginous, and the disposition to this change being set up in the part, bony matter continues to be deposited, until a very considerable enlargement takes place, known by the name of *spavin*, and there is considerable lameness in the hock-joint. The bony tumour is blistered, and probably fired, but there is no diminution of the lameness until the parts have adapted themselves, after a considerable process of time, to the altered duty required of them, and then the lameness materially diminishes, and the horse becomes, to a very considerable extent, useful. *Curb* is an enlargement of the back of the hock, three or four inches below its point. It is a strain of the ligament which there binds the tendons down in their place. The patient should be subjected to almost absolute rest; a blister should be applied over the back of the tumour, and, occasionally, firing will be requisite to complete the cure. Near the fetlock, and where the tendons are exposed to injury from pressure or friction, little bags or sacs are placed, from which a lubricating mucous fluid constantly escapes. In the violent tasks which the horse occasionally has to perform, these become bruised and inflamed, and enlarged and hardened, and are termed *wind-galls*. They blemish the horse, but are no cause of lameness after the inflammation has subsided, unless they become very much enlarged. The cautery will then be the best cure. Immediately above the hock enlargements of a similar nature are sometimes found, and, as they project both inwardly and outwardly, they are termed *thorough-pins*. They are seldom a cause of lameness, but they indicate great and perhaps injurious exertion of the joint. On the inside of the hock a tumour of this kind, but of a more serious nature, is found. It is one of these enlarged mucous bags, but very deeply seated and the subcutaneous vein of the hock passing over it. The course of the blood through the vein is thus in some measure arrested, and a portion of the vessel becomes distended. This is a serious evil, since, from the deep-seatedness of the mucous bag, it is almost impossible to act effectually upon it. It is termed *bog* or *blood spavin*.

The cellular tissue which fills the interstices of the various

organs, or enters into their texture, is the seat of many diseases. From the badness of the harness, or the brutality of the attendant, the poll of the horse becomes contused. Inflammation is set up, considerable swelling ensues. An ulcerative process soon commences, and chasms and sinuses of the most frightful extent begin to be formed. The withers also are occasionally bruised, and the same process takes place there, and sinuses penetrate deep beneath the shoulder, and the bones of the withers are frequently exposed. These abscesses are termed *poll evil* and *fistulous withers*, and in the treatment of them the horse is often tortured to a dreadful extent. A better mode of management has however been introduced; setons are passed through the most dependent parts; no collection of sanious fluid is permitted to exist, and milder stimulants are applied to the surface of the ulcer.

An abscess of a peculiar character is found between the branches of the lower jaw in young horses. It is preceded by some degree of fever. It is usually slow in its progress, but at length it attains a considerable size, including the whole of the cellular tissue in that neighbourhood. There is one uniform mass of tumefaction. This is *strangles*. It seems to be an effort of nature to get rid of something that oppresses the constitution, and the treatment of it is now simple and effectual. It is encouraged by fomentations and blisters. It is punctured as soon as the fluctuation of a fluid within it can be fairly detected—the pus speedily escapes, and there is an end of the matter.

*Farcy.*—While the arterial capillaries are engaged in building up the frame, the absorbents are employed in removing that which is not only useless, but would be poisonous and destructive. They take up the matter of glanders and of every ulcerating surface, and they are occasionally irritated, inflamed, and ulcerated from the acrimonious nature of the poison which they carry. The absorbents are furnished with numerous valves. The fluid is for a while arrested by them, and there the inflammation is greatest, and ulceration takes place. This is the history of the farcy cords and buds. Farcy is a highly contagious disease, whether or not it be connected with glanders. It, however, occasionally admits of cure from the application of the cautery to the buds, and the administration of the corrosive sublimate or the sulphate of iron internally.

The skin of the horse is subject to various diseases. Large pimples or lumps suddenly appear on it, and, after remaining a few days, the cuticle peels off, and a circular scaly spot is left. This is called *surfeit*. The cause is obscure, but princi-

pally referrible to indigestion. A slight bleeding will always be serviceable. Physic rarely does good, but alteratives composed of nitre, black antimony, and sulphur, will be very beneficial. *Mange* is a disease of a different character. It is the curse of the stable into which it enters, for it will almost certainly affect every horse. Thorough dressings with Barbadoes tar and linseed-oil, in the proportion of one of the former to three of the latter, will be the most effectual external application, while alteratives and physic should be given internally. *Hide-bound* is a very appropriate term for the peculiar sticking of the hide to the ribs when a horse is out of condition. The subcutaneous adipose matter is all absorbed. The alterative above recommended will be very useful here.

The legs, and the hind ones more than the fore ones, are subject to frequent and great and obstinate swellings, attended by great pain and considerable fever. It is acute inflammation of the cellular substance of the legs. Physic and diuretics, and tonics if there is the slightest appearance of debility, are the proper means of cure. Friction and bandages will also be useful occasionally. There is no disease in which the farrier and the groom do greater mischief than in this.

*Grease* is an undue secretion of the fluid which was designed to lubricate the skin of the heels, and that secretion is also altered in quality. The hind legs begin to swell—a fluid exudes from the heels—the hairs of the heels become erect like so many bristles, and the skin of the heel is hot and greasy. Soon afterwards cracks appear across the heel: they discharge a thick and offensive matter, and then deepen. They spread up the leg, and so does the tumefaction of the part. In process of time the skin, inflamed and ulcerated, undergoes an alteration of structure; prominences or granulations appear on it, assuming the appearance of a collection of grapes, or the skin of a pine-apple. They increase, and a fœtid discharge appears from the crevices between them.

The cause is generally neglect of the horse. He is suffered to stand in the stable with his heels cold and wet, which necessarily disposes them to inflammation and disease.

In the first stage of grease, bran or turnip or carrot poultices will be serviceable, with moderate physic. Then astringents must be employed, and the best are alum or sulphate of copper in powder, mixed with several times the quantity of Bole Armenian, and sprinkled on the sores. These should be alternated every three or four days. The grapy heels are a disgrace to the stable in which they are found, and admit not of radical cure.

*Splints* are bony enlargements, generally on the inside of the leg, arising from undue pressure on the inner splint-bone, and this either caused by the natural conformation of the leg, or violent blows on it. These excrescences will often gradually disappear, or will yield to a simple operation, or to the application of the hydriodate of potash or blister ointments. *Sprains*, if neglected, occasionally become very serious evils. Rest, warm fomentations, poultices, or, in bad cases, blistering, are the usual remedies. *Windgalls*, if they are of considerable size, or accompanied by much inflammation or lameness, will find in a blister the most effectual remedy. *Sprains of the fetlock* demand prompt and severe blistering. Nothing short of this will produce a permanent cure. *Sprains of the pastern and coffin-joints* demand still more prompt and decisive treatment. If neglected or inefficiently managed, the neighbouring ligaments will be involved, more extensive inflammation will be set up, and bony matter, under the name of *ring-bone*, will spread over the pasterns and cartilages of the foot. Firing alone will, in the majority of cases, be efficient here.

*Inflammation of the foot*, or acute founder.—In speaking of the structure of the foot, the laminæ, or fleshy plates on the front and sides of the coffin-bone, were described. From over-exertion, or undue exposure to cold or wet, or sudden change from cold to heat, inflammation of these laminæ is apt to occur, and a dreadfully painful disease it is. It is easily detected by the heat of the feet, and the torture which is produced by the slightest touch of the hammer. The shoe must be removed, the sole well pared out, plentiful bleeding from the toe had recourse to, the foot well poulticed, and cooling medicines resorted to. The bleeding should be repeated if manifest benefit is not procured, and cloths dipped in dissolved nitre, which are colder than the common poultice, should be substituted. After this a poultice around the foot and pastern should succeed. Little food should be given, and that must consist of green meat or mashes.

*Pumiced Feet.*—This is one of the consequences of inflamed feet. The sole of the foot becomes flattened, or even convex, by the pressure of the weight above. There is no cure here, and the only palliation of the evil is obtained from the application of a shoe so beveled off from the crust that it shall not press upon or touch the sole. This, however, is only a temporary palliation, for the sole will continue to project, and the horse will be useless.

*Contracted Feet.*—By this is meant an increase in the length of the foot, and a gradual narrowing as the heels are

approached; and as the necessary consequence of this, a diminution of the width of the foot and a concavity of the sole. In point of fact, the whole of the foot, including the coffin-bone, becomes narrowed, and consequently elongated. This change of form is accompanied by considerable pain; the action of the horse is altered; there is a shortened tread, and a hesitating way of putting the foot to the ground.

The frog and heel would expand when the weight of the horse descends and is thrown upon them, but the nailing of the shoe at the heels prevents it. Thence the pain and lameness. Mr. Turner of Regent-street obviates this by a very simple method. He puts four or five nails in the shoe on the outside, and only two on the inside. There is then sufficient room for the natural expansion to take place, and the foot and action of the horse are little or not at all changed. This is an admirable contrivance, and recourse should always be had to it.

*The Navicular Joint Disease.*—There are many horses with open and well-formed feet that are lame. In every motion of the foot there is a great deal of action between the navicular bone and the flexor tendon which passes over it in order to be inserted into the navicular bone. From concussion or violent motion, the membrane or the cartilage which covers the navicular bone is bruised or abraded, the horse becomes lame, and often continues so for life. This disease admits of remedy to a very considerable extent; no one, however, but a skilful veterinary surgeon is capable of successfully undertaking it.

*Sand-crack* is a division of the crust of the hoof from the upper part of it downward. It bespeaks brittleness of the foot, and often arises from a single false step. If the crack has not penetrated through the horn, it must nevertheless be pared fairly out, and generally a coating of pitch should be bound round the foot. If the crack has reached the quick, that *must* be done which ought to be done in every case—a skilful surgeon should be consulted, otherwise false quarter may ensue.

*False Quarter* is a division of *the ligament* by which the crust is secreted. It is one of the varieties of sand-crack, and exceedingly difficult of cure.

*Tread* or *Overreach* is a clumsy habit of setting one foot upon or bruising the other. It should immediately and carefully be attended to, or a bad case of *quittor* may ensue.

*Quittor* is the formation of little pipes between the crust and the hoof, by means of which the purulent matter secreted from some wound beneath the crust makes its escape. The

healing of this, and of every species of *prick* or *wound* in the sole or crust, is often exceedingly difficult.

*Corns* are said to exist when the posterior part of the foot between the external crust and the bars is unnaturally contracted and becomes inflamed. Corns are the consequence of continued and unnatural pressure. The thorough cure of corns will put the ingenuity of the operator to the trial.

*Thrush* is the consequence of unnatural pressure on the frog. It is the cause and the effect of contraction, whether it is found in the heels of the fore feet or the hinder ones. It is not difficult of cure when taken in time, but when neglected it often becomes a very serious matter.

*Canker* is the consequence of thrush, or, indeed, of almost every disease of the foot. It is attended by a greater or less separation of horn, which sometimes leaves the whole of the sole bare. This also, like the diseases of the foot generally, is difficult of cure.

Few things are more neglected, and yet of greater importance to the comfort and durability of the horse, than a proper system of *Shoeing*. It is necessary that the foot should be defended from the wear and tear of the roads, but that very defence too often entails on the animal a degree of injury and suffering scarcely credible. The shoe is fixed to the foot, and often interferes with and limits the beautiful expansibility of that organ, and thus causes much unnecessary concussion and mischief.

The shoe of a healthy foot should offer a perfectly flat surface to the ground. The bearing or weight of the horse will then be diffused over the surface of the shoe, and there will be no injurious accumulation of it on different points. Too often, however, there is a convexity towards the inner edge, which causes an inequality of bearing, and breaks and destroys the crust. Round the outer edge of the shoe, and extended over two-thirds of it on the lower surface, a groove is sunk, through which pass the nails for the fastening of the shoe. At first they somewhat project, but they are soon worn down to the level of the shoe, which in the healthy foot should not vary from the heel to the toe.

The width of the shoe will depend on that of the foot. The general rule is that it should protect the sole from injury, and be as wide at the heel as the frog will permit.

The upper surface of the shoe should be differently formed. It should be flat along the upper end, outer supporting the crust, or, in other words, the weight of the horse, and widest at the heel, so as to meet and withstand the shock of the bars and the crust. The inner portion of the shoe should be

beveled off, in order that, in the descent of the sole, that part of the foot may not be bruised. The owner of the horse should occasionally be present when the shoes are removed, and he will be too often surprised to see how far the smith, almost wilfully, deviates from the right construction of this apparently simple apparatus. The beveled shoe is a little more troublesome to make and to apply than that which is often used by the village smith, but it will be the owner's fault if his directions are not implicitly obeyed.

Even at the commencement of the operation of shoeing the eye of the master or the trustworthy groom will be requisite. The shoe is often torn from the foot in a most violent and cruel way. Scarcely half the clenches are raised when the smith seizes the shoe with his pincers, and forcibly wrenches it off. The shrinking of the horse will tell how much he suffers, and the fragments of the crust will also afford sufficient proofs of the mischief that has been done, especially when it is recollected that every nail-hole is enlarged by this brutal force, and the future safety of the shoe to a greater or less degree weakened, and pieces of the nail are sometimes left in the substance of the crust, which become the cause of future disease.

In the paring out of the foot, also, there is frequently great mischief done. The formidable *butteris* is still often found in the smithy of the country farrier, although it is banished from the practice of every respectable operator. A worse evil, however, remains. By the butteris much of the sole was injuriously removed, and the foot was occasionally weakened, but the *drawing-knife* frequently left a portion of sole sufficient to destroy the elasticity of the foot, and to lay the foundation for contraction, corns, and permanent lameness. One object then of the looker-on is to ascertain the actual state of the foot. On the descent of the crust, when the foot is placed on the ground, depends the elasticity and healthy state of the foot, and that may be satisfactorily determined by the yielding of the sole, although to a very slight degree, when it is strongly pressed upon with the thumb. The sole being pared out, the crust on each side may be lowered, but never reduced to a level with the sole, otherwise this portion will be exposed to continual injury.

The heels often suffer considerably from the carelessness or ignorance of the smith. The weight of the horse is not thrown equably on them, but considerably more on the inner than the outer quarter. The consequence of this is that the inner heel is worn down more than the outer, and the foundation is laid for tenderness and ulceration. The smith is too often in-

attentive to this, and pares away an equal quantity of horn from the inner and outer heel, leaving the former weaker and lower, and less able to support the weight thrown upon it.

Mention has already been made of the use of the *bars* in admitting and yet limiting to its proper extent the expansion of the foot. The smith in the majority of country forges, and in too many of those that disgrace the metropolis, seems to have waged interminable war with these portions of the foot, and avails himself of every opportunity to pare them down, or perfectly destroy them, forgetting, or never having learned, that the destruction of the bars necessarily leads to contraction by removing the chief impediment to it.

The horn between the crust and the bar should be well pared out. Every one accustomed to horses must have observed the great relief that is given to the horse with corns when this angle is pared out, and yet, from some fatality, the smith rarely leaves it where nature placed it, but cuts away every portion of it.

The true function of the frog is easily understood. It gives security to the tread, and contributes to the expansion of the heels; but the smith, although these cases come before him every day, seems to be quite unaware of the course which he should pursue, and either leaves the frog almost untouched, and then it becomes bruised and injured, or he pares it away so that it cannot come into contact with the ground, and consequently is not enabled to do its duty.

The owner of the horse will therefore find it his interest occasionally to visit the forge, and, guided by the simple principles which have been stated, he will seldom err in his opinion of what is going forward there. He should impress two principles deeply on his mind, that a great deal more depends on the paring out of the foot than in the construction of the shoe: that few shoes, except they press upon the sole, or are made shamefully bad, will lame the horse, but that he may be very easily lamed by an ignorant or improper paring out of the foot.

Where the owner of the horse has sufficient influence with the smith, he will find it advisable always to have a few sets of shoes ready made. Much time will be saved, in case of accident, and there will not be, as is too often the case, the cutting and paring and injuring of the foot, in order to make it fit the shoe. More injury than would be readily believed is done to the foot by contriving to get on it too small a shoe.

THE END.